

## APPENDIX D

|                                                                        |                  |
|------------------------------------------------------------------------|------------------|
| Foul Water Flow Rate Based on Appliances - Proposed Site 64 Bed scheme |                  |
| Stage                                                                  | 5 - Construction |

|                         |  |              |              |                            |     |             |
|-------------------------|--|--------------|--------------|----------------------------|-----|-------------|
| <b>iesis</b> STRUCTURES |  | Design/Date  | Checked/Date | Ref:                       | Rev | Suitability |
|                         |  | PL / 20-4-22 |              | SE1612-ISS-XX-XX-CA-C-0002 | P03 |             |

Formula for calculating Foul Water Flow rate:

$$(Q_{ww}) = K \sqrt{\sum DU}$$

$Q_{ww}$  = Foul water (waste water) flow in l/s

K = frequency factor

$\sum DU$  = Sum of discharge units (l/s)

Values and calculation taken from BS EN 12056-2:2000, Part 2 Sanitary Pipework, Layout and Calculation

#### Frequency Factor

| Usage of Appliances |                                          | k   |
|---------------------|------------------------------------------|-----|
| Intermittent        | i.e. dwelling, guesthouse, office        | 0.5 |
| Frequent            | i.e. hospital, school, restaurant, hotel | 0.7 |
| Congested           | i.e. toilets/showers open to public      | 1   |
| Special             | i.e. laboratory                          | 1.2 |

| Discharge Unit             | DU  |
|----------------------------|-----|
| Bath                       | 0.8 |
| Dishwasher (household)     | 0.8 |
| Floor gully DN50           | 0.8 |
| Floor gully DN70           | 1.5 |
| Floor gully DN100          | 2.0 |
| Kitchen sink               | 0.8 |
| Shower with plug           | 0.8 |
| Shower without plug        | 0.6 |
| Slab urinal                | 0.2 |
| Urinal with flushing valve | 0.5 |
| Urinal with cistern        | 0.8 |
| Wash basin, bidet          | 0.5 |
| Washing machine (0-6kg)    | 0.8 |
| Washing machine (6-12kg)   | 1.5 |
| WC with 6l cistern         | 2.0 |
| WC with 7.5l cistern       | 2.0 |
| WC with 9l cistern         | 2.5 |
| None                       |     |

| Location                                                        | Discharge Unit         | Rate | No. of Units | Total DU |
|-----------------------------------------------------------------|------------------------|------|--------------|----------|
| Main run along north side of the building and west side as well | WC with 7.5l cistern   | 2    | 42           | 84       |
|                                                                 | Shower without plug    | 0.6  | 42           | 25.2     |
|                                                                 | Wash basin, bidet      | 0.5  | 42           | 21       |
| Main run along north side of the building and west side as well | Dishwasher (household) | 0.8  | 4            | 3.2      |
|                                                                 | Kitchen sink           | 0.8  | 7            | 5.6      |
|                                                                 | Wash basin, bidet      | 0.5  | 3            | 1.5      |
|                                                                 | WC with 7.5l cistern   | 2    | 3            | 6        |

Net discharge from Units ( $\sum DU$  in l/s) = 146.5

Calculate foul flow rate with a frequency of usage being: Intermittent

$$(Q_{ww}) = K \sqrt{\sum DU} = 0.5 \times (146.5)^{0.5} = 6.052 \text{ l/s}$$

| Location                                 | Discharge Unit           | Rate | No. of Units | Total DU |
|------------------------------------------|--------------------------|------|--------------|----------|
| Secondary run along south side and front | WC with 7.5l cistern     | 2    | 36           | 72       |
|                                          | Shower without plug      | 0.6  | 36           | 21.6     |
|                                          | Wash basin, bidet        | 0.5  | 36           | 18       |
| Secondary run along south side and front | Dishwasher (household)   | 0.8  | 3            | 2.4      |
|                                          | Washing machine (6-12kg) | 1.5  | 3            | 4.5      |
|                                          | Kitchen sink             | 0.8  | 8            | 6.4      |
|                                          | Wash basin, bidet        | 0.5  | 17           | 8.5      |
|                                          | Bath                     | 0.8  | 3            | 2.4      |

Net discharge from Units ( $\sum DU$  in l/s) = 135.8

Calculate foul flow rate with a frequency of usage being: Intermittent

$$(Q_{ww}) = K \sqrt{\sum DU} = 0.5 \times (135.8)^{0.5} = 5.827 \text{ l/s}$$

|                                  |                 |             |              |                            |     |             |
|----------------------------------|-----------------|-------------|--------------|----------------------------|-----|-------------|
| Surface Water Infiltration Rates |                 | Design/Date | Checked/Date | Ref:                       | Rev | Suitability |
| Stage                            | 3 - Preliminary | PL/05.02.20 |              | SE1612-ISS-XX-XX-CA-C-0003 | P02 |             |

Agreed with Planners that the site investigation report by Ashdown Site Investigation Ltd. (ref R18-12844, dated April 2018) is to be used for the soakaways for the western area of the site

Test pit ref within the above document to be used is TP01

Rate to be used for western area of site = 16.16 m/hr

| Test            | 1     | 2     | 3     | m              |
|-----------------|-------|-------|-------|----------------|
| Pit Length      | 0.45  | 0.45  | 0.45  | m              |
| Pit Width       | 1.90  | 1.90  | 1.90  | m              |
| Pit depth       | 2.80  | 2.50  | 2.30  | m              |
| Volume 100%     | 2.39  | 2.14  | 1.97  | m <sup>3</sup> |
| Volume 75%      | 1.80  | 1.60  | 1.47  | m <sup>3</sup> |
| Volume 25%      | 0.60  | 0.53  | 0.49  | m <sup>3</sup> |
| Volume 0%       | 0     | 0     | 0     | m <sup>3</sup> |
| Volume 75%-25%  | 1.20  | 1.07  | 0.98  | m <sup>3</sup> |
| Time 100%       | 0     | 0     | 0     | s              |
| Time 75%        | 37.5  | 37.5  | 52.5  | s              |
| Time 25%        | 12.5  | 12.5  | 17.5  | s              |
| Time 0%         | 50    | 50    | 70    | s              |
| Time 75% - 25%  | 25    | 25    | 35    | s              |
| Perimter at 50% | 7.435 | 6.730 | 6.260 | m <sup>2</sup> |
| Result          | 0.01  | 0.01  | 0.00  | m/s            |
|                 | 23.18 | 22.87 | 16.16 | m/hr           |

Agreed with Planners that the site investigation report by Ashdown Site Investigation Ltd. (ref R14051, dated January 202) is to be used for the soakaways for the eastern area of the site

Test pit ref within the above document to be used is ST2

The report has calculated the infiltration for the test pit and this value is to be used for the eastern area

Rate to be used for eastern area of site = 3.60E-04 m/s

Convert as Microdrainage uses different rate, rate = 1.296 m/hr

| Test            | 1     | 2     | 3     | m              |
|-----------------|-------|-------|-------|----------------|
| Pit Length      |       |       |       | m              |
| Pit Width       |       |       |       | m              |
| Pit depth       |       |       |       | m              |
| Volume 100%     | 0.00  | 0.00  | 0.00  | m <sup>3</sup> |
| Volume 75%      | 0.00  | 0.00  | 0.00  | m <sup>3</sup> |
| Volume 25%      | 0.00  | 0.00  | 0.00  | m <sup>3</sup> |
| Volume 0%       | 0     | 0     | 0     | m <sup>3</sup> |
| Volume 75%-25%  | 0.00  | 0.00  | 0.00  | m <sup>3</sup> |
| Time 100%       | 0     | 0     | 0     | s              |
| Time 75%        | 0     | 0     | 0     | s              |
| Time 25%        | 0     | 0     | 0     | s              |
| Time 0%         |       |       |       | s              |
| Time 75% - 25%  | 0     | 0     | 0     | s              |
| Perimter at 50% | 0.000 | 0.000 | 0.000 | m <sup>2</sup> |
| Result          |       |       |       | m/s            |
|                 |       |       |       | m/hr           |

|                           |                 |                 |              |                            |                 |
|---------------------------|-----------------|-----------------|--------------|----------------------------|-----------------|
| Pipe Bedding Calculations |                 | iesi STRUCTURES |              |                            |                 |
|                           |                 | Design/Date     | Checked/Date | Ref:                       | Rev Suitability |
| Stage                     | 3 - Preliminary | PL/10.03.20     |              | SE1612-ISS-XX-XX-CA-C-0010 | P02             |

Sewers range in depth to a max. 3m depth with dia. 150mm except for a couple runs being 225mm

Break down range into:

Group A: 0 - 0.9m

Group C: 1.2 - 2m

Group B: 0.9 - 1.2m

Group D: 2 - 3m

Using the Simplified Tables of External Loads on Buried Pipelines produced by the Transport Research Laboratory,

Design for loads in Roads with wide trenches (worse case) for clay pipes (Extra Strength type)

Max. load applied to sewers for each Group using Table M

1 = 26.3kN/m      2 = 20.8kN/m      3 = 21.0kN/m      4 = 22.8kN/m

Compare against traffic loads where the top 220mm is not applied, Tyre pressure is 700kN/m<sup>2</sup>, Table C

1 = 41.0kN/m      2 = 35.5kN/m      3 = 21.5kN/m      4 = 5.6kN/m

Bedding type / Max. load for permanent trafficking

1 = Z / 45.8kN/m      2 = S / 38.7kN/m      3 = F / 26.4kN/m      4 = F / 26.4kN/m

Design for loads in Fields with wide trenches (worse case) for clay pipes (Extra Strength type)

Max. load applied to sewers for each Group using Table F

1 = 16.7kN/m      2 = 13.2kN/m      3 = 12.3kN/m      4 = 18.8kN/m

Compare against traffic loads where the top 220mm is not applied, Tyre pressure is 700kN/m<sup>2</sup>, Table C

1 = 41.0kN/m      2 = 35.5kN/m      3 = 21.5kN/m      4 = 5.6kN/m

Bedding type / Max. load for permanent trafficking

1 = Z / 45.8kN/m      2 = S / 38.7kN/m      3 = F / 26.4kN/m      4 = F / 26.4kN/m

### Design Settings

|                                   |        |                             |               |
|-----------------------------------|--------|-----------------------------|---------------|
| Frequency of use (kDU)            | 1.00   | Minimum Velocity (m/s)      | 0.75          |
| Flow per dwelling per day (l/day) | 4000   | Connection Type             | Level Soffits |
| Domestic Flow (l/s/ha)            | 4000.0 | Minimum Backdrop Height (m) | 0.200         |
| Industrial Flow (l/s/ha)          | 1.0    | Preferred Cover Depth (m)   | 1.200         |
| Additional Flow (%)               | 0      | Include Intermediate Ground | ✓             |

### Nodes

| Name   | Cover Level (m) | Node Type | Manhole Type | Width (mm) | Depth (m) |
|--------|-----------------|-----------|--------------|------------|-----------|
| 1.01   | 15.132          | Manhole   | Adoptable    |            | 0.732     |
| 1.12   | 15.132          | Manhole   | Adoptable    |            | 0.732     |
| 1.02   | 15.033          | Manhole   | Adoptable    |            | 0.883     |
| 1.13   | 15.130          | Manhole   | Adoptable    |            | 0.810     |
| 1.03   | 15.032          | Manhole   | Adoptable    |            | 1.052     |
| 1.14   | 15.193          | Manhole   | Adoptable    |            | 0.893     |
| NODE-1 | 15.032          | Manhole   | Adoptable    |            | 1.123     |
| 1.15   | 15.113          | Manhole   | Adoptable    |            | 1.133     |
| NODE-2 | 15.032          | Manhole   | Adoptable    |            | 1.172     |
| 1.16   | 15.147          | Manhole   | Adoptable    |            | 0.837     |
| NODE-3 | 15.033          | Manhole   | Adoptable    |            | 1.217     |
| 1.17   | 15.147          | Manhole   | Adoptable    |            | 0.787     |
| NODE-4 | 15.033          | Manhole   | Adoptable    |            | 1.262     |
| 1.18   | 15.145          | Manhole   | Adoptable    |            | 0.795     |
| 1.03a  | 15.033          | Manhole   | Adoptable    | 450        | 1.358     |
| 1.19   | 15.096          | Manhole   | Adoptable    |            | 0.746     |
| 1.04   | 15.033          | Manhole   | Adoptable    | 450        | 1.463     |
| 1.05   | 15.042          | Manhole   | Adoptable    |            | 1.672     |
| 1.20   | 15.146          | Manhole   | Adoptable    |            | 0.606     |
| 1.21   | 15.131          | Manhole   | Adoptable    |            | 0.691     |
| 1.22   | 15.131          | Manhole   | Adoptable    |            | 0.791     |
| 1.23   | 15.072          | Manhole   | Adoptable    |            | 0.672     |
| 1.07a  | 15.026          | Manhole   | Adoptable    |            | 1.756     |
| 1.06   | 14.917          | Manhole   | Adoptable    |            | 2.027     |
| 1.24   | 15.200          | Manhole   | Adoptable    |            | 0.780     |
| 1.25   | 15.197          | Manhole   | Adoptable    |            | 0.877     |
| 1.26   | 14.995          | Manhole   | Adoptable    |            | 0.895     |
| 1.27   | 15.033          | Manhole   | Adoptable    |            | 1.033     |
| 1.32   | 15.146          | Manhole   | Adoptable    |            | 0.696     |
| 1.33   | 15.119          | Manhole   | Adoptable    |            | 0.769     |
| 1.35   | 15.147          | Manhole   | Adoptable    |            | 0.747     |
| 1.36   | 15.123          | Manhole   | Adoptable    |            | 0.893     |
| 1.36a  | 15.100          | Manhole   | Adoptable    |            | 1.020     |
| 1.34   | 14.951          | Manhole   | Adoptable    |            | 1.431     |
| 1.28   | 14.976          | Manhole   | Adoptable    |            | 1.626     |
| 1.37   | 15.082          | Manhole   | Adoptable    |            | 0.682     |
| 1.29   | 15.014          | Manhole   | Adoptable    |            | 2.014     |
| 1.38   | 15.164          | Manhole   | Adoptable    |            | 1.264     |
| 1.40   | 15.118          | Manhole   | Adoptable    |            | 1.218     |
| 1.41   | 15.161          | Manhole   | Adoptable    |            | 1.261     |
| 1.39   | 14.915          | Manhole   | Adoptable    |            | 1.915     |
| NODE-6 | 14.778          | Manhole   | Adoptable    |            | 1.906     |
| 1.45   | 15.182          | Manhole   | Adoptable    |            | 0.782     |
| 1.42   | 15.185          | Manhole   | Adoptable    |            | 0.785     |

### Nodes

| Name   | Cover Level (m) | Node Type | Manhole Type | Width (mm) | Depth (m) |
|--------|-----------------|-----------|--------------|------------|-----------|
| 1.43   | 15.164          | Manhole   | Adoptable    |            | 0.934     |
| 1.44   | 14.991          | Manhole   | Adoptable    |            | 1.821     |
| NODE-7 | 14.737          | Manhole   | Adoptable    |            | 1.962     |
| 1.30   | 14.893          | Manhole   | Adoptable    |            | 2.293     |
| 1.46   | 15.176          | Manhole   | Adoptable    |            | 0.706     |
| 1.49   | 15.127          | Manhole   | Adoptable    |            | 0.657     |
| 1.47   | 15.137          | Manhole   | Adoptable    |            | 0.837     |
| 1.48   | 15.039          | Manhole   | Adoptable    |            | 0.909     |
| NODE-8 | 14.899          | Manhole   | Adoptable    |            | 2.436     |
| 1.31   | 14.887          | Manhole   | Adoptable    |            | 2.457     |
| 1.07   | 14.553          | Manhole   | Adoptable    |            | 2.223     |
| 1.50   | 14.186          | Manhole   | Adoptable    |            | 1.436     |
| 1.08   | 13.815          | Manhole   | Adoptable    |            | 1.665     |
| 1.09   | 13.430          | Manhole   | Adoptable    |            | 1.710     |
| 1.10   | 13.020          | Manhole   | Adoptable    |            | 1.600     |
| 1.11   | 13.034          | Manhole   | Adoptable    |            | 1.774     |
| 4905   | 13.107          | Manhole   | Adoptable    |            | 2.307     |

### Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|
| 1.000 | 1.01    | 1.02    | 6.793      | 1.500       | 14.400    | 14.220    | 0.180    | 37.7        | 150      |
| 2.000 | 1.12    | 1.02    | 2.629      | 1.500       | 14.400    | 14.220    | 0.180    | 14.6        | 150      |
| 1.001 | 1.02    | 1.03    | 6.779      | 1.500       | 14.150    | 13.980    | 0.170    | 39.9        | 150      |
| 3.000 | 1.13    | 1.03    | 3.927      | 1.500       | 14.320    | 14.050    | 0.270    | 14.5        | 150      |
| 1.002 | 1.03    | NODE-1  | 9.051      | 1.500       | 13.980    | 13.909    | 0.071    | 127.0       | 150      |
| 4.000 | 1.14    | NODE-1  | 4.735      | 1.500       | 14.300    | 13.909    | 0.391    | 12.1        | 150      |
| 1.003 | NODE-1  | NODE-2  | 6.244      | 1.500       | 13.909    | 13.860    | 0.049    | 127.0       | 150      |
| 5.000 | 1.15    | NODE-2  | 2.758      | 1.500       | 13.980    | 13.860    | 0.120    | 23.0        | 150      |
| 1.004 | NODE-2  | NODE-3  | 5.584      | 1.500       | 13.860    | 13.816    | 0.044    | 127.0       | 150      |
| 6.000 | 1.16    | NODE-3  | 4.936      | 1.500       | 14.310    | 13.816    | 0.494    | 10.0        | 150      |
| 1.005 | NODE-3  | NODE-4  | 5.683      | 1.500       | 13.816    | 13.771    | 0.045    | 127.0       | 150      |
| 7.000 | 1.17    | NODE-4  | 3.662      | 1.500       | 14.360    | 13.771    | 0.589    | 6.2         | 150      |
| 1.006 | NODE-4  | 1.03a   | 11.783     | 1.500       | 13.771    | 13.675    | 0.096    | 122.7       | 150      |

| Name  | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|---------|-----------|-----------|------------|-------------|----------------|--------------------|
| 1.000 | 1.01    | 1.429     | 25.2      | 0.0        | 0.000       | 0              | 0.000              |
| 2.000 | 1.12    | 2.300     | 40.6      | 0.0        | 0.000       | 0              | 0.000              |
| 1.001 | 1.02    | 1.390     | 24.6      | 0.0        | 0.000       | 0              | 0.000              |
| 3.000 | 1.13    | 2.305     | 40.7      | 0.0        | 0.000       | 0              | 0.000              |
| 1.002 | 1.03    | 0.776     | 13.7      | 0.0        | 0.000       | 0              | 0.000              |
| 4.000 | 1.14    | 2.526     | 44.6      | 0.0        | 0.000       | 0              | 0.000              |
| 1.003 | NODE-1  | 0.776     | 13.7      | 0.0        | 0.000       | 0              | 0.000              |
| 5.000 | 1.15    | 1.832     | 32.4      | 0.0        | 0.000       | 0              | 0.000              |
| 1.004 | NODE-2  | 0.776     | 13.7      | 0.0        | 0.000       | 0              | 0.000              |
| 6.000 | 1.16    | 2.782     | 49.2      | 0.0        | 0.000       | 0              | 0.000              |
| 1.005 | NODE-3  | 0.776     | 13.7      | 0.0        | 0.000       | 0              | 0.000              |
| 7.000 | 1.17    | 3.523     | 62.3      | 0.0        | 0.000       | 0              | 0.000              |
| 1.006 | NODE-4  | 0.790     | 14.0      | 0.0        | 0.000       | 0              | 0.000              |

### Links

| Name   | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) |
|--------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|
| 8.000  | 1.18    | 1.03a   | 4.775      | 1.500       | 14.350    | 14.250    | 0.100    | 47.7        | 150      |
| 1.007  | 1.03a   | 1.04    | 7.225      | 1.500       | 13.675    | 13.570    | 0.105    | 68.8        | 150      |
| 9.000  | 1.19    | 1.04    | 2.320      | 1.500       | 14.350    | 14.250    | 0.100    | 23.2        | 150      |
| 1.008  | 1.04    | 1.05    | 24.717     | 1.500       | 13.570    | 13.370    | 0.200    | 123.6       | 150      |
| 1.009  | 1.05    | 1.07a   | 10.555     | 1.500       | 13.370    | 13.270    | 0.100    | 105.6       | 150      |
| 10.000 | 1.20    | 1.21    | 4.112      | 1.500       | 14.540    | 14.440    | 0.100    | 41.1        | 150      |
| 10.001 | 1.21    | 1.22    | 3.584      | 1.500       | 14.440    | 14.340    | 0.100    | 35.8        | 150      |
| 10.002 | 1.22    | 1.07a   | 14.701     | 1.500       | 14.340    | 14.000    | 0.340    | 43.2        | 150      |
| 11.000 | 1.23    | 1.07a   | 4.143      | 1.500       | 14.400    | 14.200    | 0.200    | 20.7        | 100      |
| 1.010  | 1.07a   | 1.06    | 10.517     | 1.500       | 13.270    | 12.890    | 0.380    | 27.7        | 150      |
| 1.011  | 1.06    | 1.07    | 29.173     | 1.500       | 12.890    | 12.330    | 0.560    | 52.1        | 150      |
| 12.000 | 1.24    | 1.25    | 3.934      | 1.500       | 14.420    | 14.320    | 0.100    | 39.3        | 150      |
| 12.001 | 1.25    | 1.26    | 8.096      | 1.500       | 14.320    | 14.100    | 0.220    | 36.8        | 150      |
| 12.002 | 1.26    | 1.27    | 8.790      | 1.500       | 14.100    | 14.000    | 0.100    | 87.9        | 150      |
| 12.003 | 1.27    | 1.28    | 19.720     | 1.500       | 14.000    | 13.350    | 0.650    | 30.3        | 150      |
| 13.000 | 1.32    | 1.33    | 3.246      | 1.500       | 14.450    | 14.350    | 0.100    | 32.5        | 150      |
| 13.001 | 1.33    | 1.34    | 11.316     | 1.500       | 14.350    | 13.520    | 0.830    | 13.6        | 150      |
| 14.000 | 1.35    | 1.36    | 4.511      | 1.500       | 14.400    | 14.300    | 0.100    | 45.1        | 150      |
| 14.001 | 1.36    | 1.36a   | 6.736      | 1.500       | 14.230    | 14.150    | 0.080    | 84.2        | 150      |
| 14.002 | 1.36a   | 1.34    | 7.545      | 1.500       | 14.080    | 13.590    | 0.490    | 15.4        | 150      |
| 13.002 | 1.34    | 1.28    | 2.818      | 1.500       | 13.520    | 13.420    | 0.100    | 28.2        | 150      |
| 12.004 | 1.28    | 1.29    | 19.912     | 1.500       | 13.350    | 13.000    | 0.350    | 56.9        | 150      |
| 15.000 | 1.37    | 1.29    | 2.813      | 1.500       | 14.400    | 14.300    | 0.100    | 28.1        | 150      |
| 12.005 | 1.29    | NODE-6  | 14.402     | 1.500       | 13.000    | 12.872    | 0.128    | 112.4       | 150      |

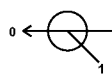
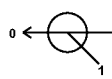
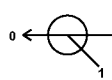
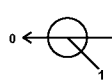
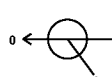
| Name   | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) | Pro Depth (mm) | Pro Velocity (m/s) |
|--------|---------|-----------|-----------|------------|-------------|----------------|--------------------|
| 8.000  | 1.18    | 1.270     | 22.4      | 0.0        | 0.000       | 0              | 0.000              |
| 1.007  | 1.03a   | 1.057     | 18.7      | 0.0        | 0.000       | 0              | 0.000              |
| 9.000  | 1.19    | 1.824     | 32.2      | 0.0        | 0.000       | 0              | 0.000              |
| 1.008  | 1.04    | 0.787     | 13.9      | 0.0        | 0.000       | 0              | 0.000              |
| 1.009  | 1.05    | 0.852     | 15.1      | 0.0        | 0.000       | 0              | 0.000              |
| 10.000 | 1.20    | 1.369     | 24.2      | 0.0        | 0.000       | 0              | 0.000              |
| 10.001 | 1.21    | 1.466     | 25.9      | 0.0        | 0.000       | 0              | 0.000              |
| 10.002 | 1.22    | 1.334     | 23.6      | 0.0        | 0.000       | 0              | 0.000              |
| 11.000 | 1.23    | 1.467     | 11.5      | 0.0        | 0.000       | 0              | 0.000              |
| 1.010  | 1.07a   | 1.669     | 29.5      | 0.0        | 0.000       | 0              | 0.000              |
| 1.011  | 1.06    | 1.215     | 21.5      | 0.0        | 0.000       | 0              | 0.000              |
| 12.000 | 1.24    | 1.399     | 24.7      | 0.0        | 0.000       | 0              | 0.000              |
| 12.001 | 1.25    | 1.447     | 25.6      | 0.0        | 0.000       | 0              | 0.000              |
| 12.002 | 1.26    | 0.934     | 16.5      | 0.0        | 0.000       | 0              | 0.000              |
| 12.003 | 1.27    | 1.594     | 28.2      | 0.0        | 0.000       | 0              | 0.000              |
| 13.000 | 1.32    | 1.541     | 27.2      | 0.0        | 0.000       | 0              | 0.000              |
| 13.001 | 1.33    | 2.381     | 42.1      | 0.0        | 0.000       | 0              | 0.000              |
| 14.000 | 1.35    | 1.306     | 23.1      | 0.0        | 0.000       | 0              | 0.000              |
| 14.001 | 1.36    | 0.955     | 16.9      | 0.0        | 0.000       | 0              | 0.000              |
| 14.002 | 1.36a   | 2.240     | 39.6      | 0.0        | 0.000       | 0              | 0.000              |
| 13.002 | 1.34    | 1.654     | 29.2      | 0.0        | 0.000       | 0              | 0.000              |
| 12.004 | 1.28    | 1.163     | 20.5      | 0.0        | 0.000       | 0              | 0.000              |
| 15.000 | 1.37    | 1.656     | 29.3      | 0.0        | 0.000       | 0              | 0.000              |
| 12.005 | 1.29    | 0.826     | 14.6      | 0.0        | 0.000       | 0              | 0.000              |

### Links

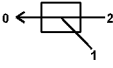
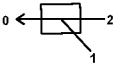
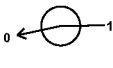
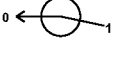
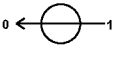
| Name   | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) |
|--------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|
| 16.000 | 1.38    | 1.39    | 7.914      | 1.500       | 13.900    | 13.000    | 0.900    | 8.8         | 150      |
| 17.000 | 1.40    | 1.39    | 7.021      | 1.500       | 13.900    | 13.000    | 0.900    | 7.8         | 150      |
| 18.000 | 1.41    | 1.39    | 6.887      | 1.500       | 13.900    | 13.000    | 0.900    | 7.7         | 150      |
| 16.001 | 1.39    | NODE-6  | 7.302      | 1.500       | 13.000    | 12.872    | 0.128    | 57.0        | 150      |
| 12.006 | NODE-6  | NODE-7  | 10.879     | 1.500       | 12.872    | 12.775    | 0.097    | 112.4       | 150      |
| 19.000 | 1.45    | 1.43    | 2.221      | 1.500       | 14.400    | 14.300    | 0.100    | 22.2        | 150      |
| 20.000 | 1.42    | 1.43    | 3.305      | 1.500       | 14.400    | 14.300    | 0.100    | 33.1        | 150      |
| 19.001 | 1.43    | 1.44    | 7.639      | 1.500       | 14.230    | 13.170    | 1.060    | 7.2         | 150      |
| 19.002 | 1.44    | NODE-7  | 6.839      | 1.500       | 13.170    | 12.775    | 0.395    | 17.3        | 150      |
| 12.007 | NODE-7  | 1.30    | 19.761     | 1.500       | 12.775    | 12.600    | 0.175    | 112.9       | 150      |
| 12.008 | 1.30    | NODE-8  | 19.404     | 1.500       | 12.600    | 12.463    | 0.137    | 141.3       | 150      |
| 21.000 | 1.46    | 1.47    | 3.782      | 1.500       | 14.470    | 14.370    | 0.100    | 37.8        | 150      |
| 22.000 | 1.49    | 1.47    | 2.698      | 1.500       | 14.470    | 14.370    | 0.100    | 27.0        | 150      |
| 21.001 | 1.47    | 1.48    | 2.922      | 1.500       | 14.300    | 14.200    | 0.100    | 29.2        | 150      |
| 21.002 | 1.48    | NODE-8  | 14.709     | 1.500       | 14.130    | 12.563    | 1.567    | 9.4         | 150      |
| 12.009 | NODE-8  | 1.31    | 4.635      | 1.500       | 12.463    | 12.430    | 0.033    | 141.0       | 150      |
| 12.010 | 1.31    | 1.07    | 13.648     | 1.500       | 12.430    | 12.330    | 0.100    | 136.5       | 150      |
| 1.012  | 1.07    | 1.08    | 24.929     | 1.500       | 12.330    | 12.150    | 0.180    | 138.5       | 150      |
| 23.000 | 1.50    | 1.08    | 6.004      | 1.500       | 12.750    | 12.150    | 0.600    | 10.0        | 150      |
| 1.013  | 1.08    | 1.09    | 8.139      | 1.500       | 12.150    | 11.720    | 0.430    | 18.9        | 150      |
| 1.014  | 1.09    | 1.10    | 9.708      | 1.500       | 11.720    | 11.420    | 0.300    | 32.4        | 150      |
| 1.015  | 1.10    | 1.11    | 23.659     | 1.500       | 11.420    | 11.260    | 0.160    | 147.9       | 150      |
| 1.016  | 1.11    | 4905    | 9.083      | 1.500       | 11.260    | 10.800    | 0.460    | 19.7        | 150      |

| Name   | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) | Pro Depth (mm) | Pro Velocity (m/s) |
|--------|---------|-----------|-----------|------------|-------------|----------------|--------------------|
| 16.000 | 1.38    | 2.966     | 52.4      | 0.0        | 0.000       | 0              | 0.000              |
| 17.000 | 1.40    | 3.149     | 55.6      | 0.0        | 0.000       | 0              | 0.000              |
| 18.000 | 1.41    | 3.179     | 56.2      | 0.0        | 0.000       | 0              | 0.000              |
| 16.001 | 1.39    | 1.161     | 20.5      | 0.0        | 0.000       | 0              | 0.000              |
| 12.006 | NODE-6  | 0.826     | 14.6      | 0.0        | 0.000       | 0              | 0.000              |
| 19.000 | 1.45    | 1.864     | 32.9      | 0.0        | 0.000       | 0              | 0.000              |
| 20.000 | 1.42    | 1.527     | 27.0      | 0.0        | 0.000       | 0              | 0.000              |
| 19.001 | 1.43    | 3.277     | 57.9      | 0.0        | 0.000       | 0              | 0.000              |
| 19.002 | 1.44    | 2.112     | 37.3      | 0.0        | 0.000       | 0              | 0.000              |
| 12.007 | NODE-7  | 0.824     | 14.6      | 0.0        | 0.000       | 0              | 0.000              |
| 12.008 | 1.30    | 0.736     | 13.0      | 0.0        | 0.000       | 0              | 0.000              |
| 21.000 | 1.46    | 1.427     | 25.2      | 0.0        | 0.000       | 0              | 0.000              |
| 22.000 | 1.49    | 1.691     | 29.9      | 0.0        | 0.000       | 0              | 0.000              |
| 21.001 | 1.47    | 1.624     | 28.7      | 0.0        | 0.000       | 0              | 0.000              |
| 21.002 | 1.48    | 2.870     | 50.7      | 0.0        | 0.000       | 0              | 0.000              |
| 12.009 | NODE-8  | 0.737     | 13.0      | 0.0        | 0.000       | 0              | 0.000              |
| 12.010 | 1.31    | 0.749     | 13.2      | 0.0        | 0.000       | 0              | 0.000              |
| 1.012  | 1.07    | 0.743     | 13.1      | 5.8        | 0.000       | 70             | 0.721              |
| 23.000 | 1.50    | 2.780     | 49.1      | 0.0        | 0.000       | 0              | 0.000              |
| 1.013  | 1.08    | 2.020     | 35.7      | 5.8        | 0.000       | 41             | 1.475              |
| 1.014  | 1.09    | 1.543     | 27.3      | 5.8        | 0.000       | 47             | 1.225              |
| 1.015  | 1.10    | 0.719     | 12.7      | 5.8        | 0.000       | 71             | 0.703              |
| 1.016  | 1.11    | 1.977     | 34.9      | 5.8        | 0.000       | 41             | 1.456              |

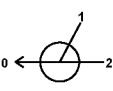
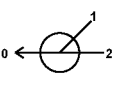
**Manhole Schedule**

| Node   | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link   | IL<br>(m)      | Dia<br>(mm)      |            |
|--------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|--------|----------------|------------------|------------|
| 1.01   | 15.132    | 0.732        | 450         |               |    |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 1.000  | 14.400         | 150              |            |
| 1.12   | 15.132    | 0.732        | 450         |               |    |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 2.000  | 14.400         | 150              |            |
| 1.02   | 15.033    | 0.883        | 450         |               |    | 1<br>2 | 2.000<br>1.000 | 14.220<br>14.220 | 150<br>150 |
|        |           |              |             |               | 0                                                                                   | 1.001  | 14.150         | 150              |            |
| 1.13   | 15.130    | 0.810        | 450         |               |    |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 3.000  | 14.320         | 150              |            |
| 1.03   | 15.032    | 1.052        | 450         |               |   | 1<br>2 | 3.000<br>1.001 | 14.050<br>13.980 | 150<br>150 |
|        |           |              |             |               | 0                                                                                   | 1.002  | 13.980         | 150              |            |
| 1.14   | 15.193    | 0.893        | 450         |               |  |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 4.000  | 14.300         | 150              |            |
| NODE-1 | 15.032    | 1.123        | 300         |               |  | 1<br>2 | 4.000<br>1.002 | 13.909<br>13.909 | 150<br>150 |
|        |           |              |             |               | 0                                                                                   | 1.003  | 13.909         | 150              |            |
| 1.15   | 15.113    | 1.133        | 450         |               |  |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 5.000  | 13.980         | 150              |            |
| NODE-2 | 15.032    | 1.172        | 300         |               |  | 1<br>2 | 5.000<br>1.003 | 13.860<br>13.860 | 150<br>150 |
|        |           |              |             |               | 0                                                                                   | 1.004  | 13.860         | 150              |            |
| 1.16   | 15.147    | 0.837        | 450         |               |  |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 6.000  | 14.310         | 150              |            |
| NODE-3 | 15.033    | 1.217        | 300         |               |  | 1<br>2 | 6.000<br>1.004 | 13.816<br>13.816 | 150<br>150 |
|        |           |              |             |               | 0                                                                                   | 1.005  | 13.816         | 150              |            |
| 1.17   | 15.147    | 0.787        | 450         |               |  |        |                |                  |            |
|        |           |              |             |               | 0                                                                                   | 7.000  | 14.360         | 150              |            |
| NODE-4 | 15.033    | 1.262        | 300         |               |  | 1<br>2 | 7.000<br>1.005 | 13.771<br>13.771 | 150<br>150 |
|        |           |              |             |               | 0                                                                                   | 1.006  | 13.771         | 150              |            |

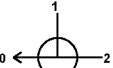
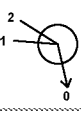
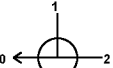
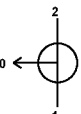
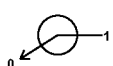
**Manhole Schedule**

| Node  | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link   | IL<br>(m) | Dia<br>(mm) |     |
|-------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|--------|-----------|-------------|-----|
| 1.18  | 15.145    | 0.795        | 450         |               |    |        |           |             |     |
|       |           |              |             |               | 0                                                                                   | 8.000  | 14.350    | 150         |     |
| 1.03a | 15.033    | 1.358        | 600         | 450           |    | 1      | 8.000     | 14.250      | 150 |
|       |           |              |             |               | 2                                                                                   | 1.006  | 13.675    | 150         |     |
|       |           |              |             |               | 0                                                                                   | 1.007  | 13.675    | 150         |     |
| 1.19  | 15.096    | 0.746        | 450         |               |    |        |           |             |     |
|       |           |              |             |               | 0                                                                                   | 9.000  | 14.350    | 150         |     |
| 1.04  | 15.033    | 1.463        | 600         | 450           |    | 1      | 9.000     | 14.250      | 150 |
|       |           |              |             |               | 2                                                                                   | 1.007  | 13.570    | 150         |     |
|       |           |              |             |               | 0                                                                                   | 1.008  | 13.570    | 150         |     |
| 1.05  | 15.042    | 1.672        | 450         |               |    | 1      | 1.008     | 13.370      | 150 |
|       |           |              |             |               | 0                                                                                   | 1.009  | 13.370    | 150         |     |
| 1.20  | 15.146    | 0.606        | 450         |               |  |        |           |             |     |
|       |           |              |             |               | 0                                                                                   | 10.000 | 14.540    | 150         |     |
| 1.21  | 15.131    | 0.691        | 450         |               |  | 1      | 10.000    | 14.440      | 150 |
|       |           |              |             |               | 0                                                                                   | 10.001 | 14.440    | 150         |     |
| 1.22  | 15.131    | 0.791        | 450         |               |  | 1      | 10.001    | 14.340      | 150 |
|       |           |              |             |               | 0                                                                                   | 10.002 | 14.340    | 150         |     |
| 1.23  | 15.072    | 0.672        | 450         |               |  |        |           |             |     |
|       |           |              |             |               | 0                                                                                   | 11.000 | 14.400    | 100         |     |
| 1.07a | 15.026    | 1.756        | 1200        |               |  | 1      | 11.000    | 14.200      | 100 |
|       |           |              |             |               | 2                                                                                   | 10.002 | 14.000    | 150         |     |
|       |           |              |             |               | 3                                                                                   | 1.009  | 13.270    | 150         |     |
|       |           |              |             |               | 0                                                                                   | 1.010  | 13.270    | 150         |     |
| 1.06  | 14.917    | 2.027        | 450         |               |  | 1      | 1.010     | 12.890      | 150 |
|       |           |              |             |               | 0                                                                                   | 1.011  | 12.890    | 150         |     |
| 1.24  | 15.200    | 0.780        | 450         |               |  |        |           |             |     |
|       |           |              |             |               | 0                                                                                   | 12.000 | 14.420    | 150         |     |
| 1.25  | 15.197    | 0.877        | 450         |               |  | 1      | 12.000    | 14.320      | 150 |
|       |           |              |             |               | 0                                                                                   | 12.001 | 14.320    | 150         |     |

**Manhole Schedule**

| Node  | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link     | IL<br>(m) | Dia<br>(mm) |
|-------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|----------|-----------|-------------|
| 1.26  | 14.995    | 0.895        | 450         |               |    | 1 12.001 | 14.100    | 150         |
|       |           |              |             |               | 0                                                                                   | 12.002   | 14.100    | 150         |
| 1.27  | 15.033    | 1.033        | 450         |               |    | 1 12.002 | 14.000    | 150         |
|       |           |              |             |               | 0                                                                                   | 12.003   | 14.000    | 150         |
| 1.32  | 15.146    | 0.696        | 450         |               |    | 0 13.000 | 14.450    | 150         |
| 1.33  | 15.119    | 0.769        | 450         |               |    | 1 13.000 | 14.350    | 150         |
|       |           |              |             |               | 0                                                                                   | 13.001   | 14.350    | 150         |
| 1.35  | 15.147    | 0.747        | 450         |               |    | 0 14.000 | 14.400    | 150         |
| 1.36  | 15.123    | 0.893        | 450         |               |  | 1 14.000 | 14.300    | 150         |
|       |           |              |             |               | 0                                                                                   | 14.001   | 14.230    | 150         |
| 1.36a | 15.100    | 1.020        | 450         |               |  | 1 14.001 | 14.150    | 150         |
|       |           |              |             |               | 0                                                                                   | 14.002   | 14.080    | 150         |
| 1.34  | 14.951    | 1.431        | 450         |               |  | 1 14.002 | 13.590    | 150         |
|       |           |              |             |               | 2                                                                                   | 13.001   | 13.520    | 150         |
|       |           |              |             |               | 0                                                                                   | 13.002   | 13.520    | 150         |
| 1.28  | 14.976    | 1.626        | 450         |               |  | 1 13.002 | 13.420    | 150         |
|       |           |              |             |               | 2                                                                                   | 12.003   | 13.350    | 150         |
|       |           |              |             |               | 0                                                                                   | 12.004   | 13.350    | 150         |
| 1.37  | 15.082    | 0.682        | 450         |               |  | 0 15.000 | 14.400    | 150         |
| 1.29  | 15.014    | 2.014        | 1200        |               |  | 1 15.000 | 14.300    | 150         |
|       |           |              |             |               | 2                                                                                   | 12.004   | 13.000    | 150         |
|       |           |              |             |               | 0                                                                                   | 12.005   | 13.000    | 150         |
| 1.38  | 15.164    | 1.264        | 450         |               |  | 0 16.000 | 13.900    | 150         |
| 1.40  | 15.118    | 1.218        | 450         |               |  | 0 17.000 | 13.900    | 150         |

**Manhole Schedule**

| Node   | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link | IL<br>(m) | Dia<br>(mm) |     |
|--------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|------|-----------|-------------|-----|
| 1.41   | 15.161    | 1.261        | 450         |               |    | 0    | 18.000    | 13.900      | 150 |
| 1.39   | 14.915    | 1.915        | 1200        |               |    | 1    | 18.000    | 13.000      | 150 |
|        |           |              |             |               |                                                                                     | 2    | 17.000    | 13.000      | 150 |
|        |           |              |             |               |                                                                                     | 3    | 16.000    | 13.000      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 16.001    | 13.000      | 150 |
| NODE-6 | 14.778    | 1.906        | 300         |               |    | 1    | 16.001    | 12.872      | 150 |
|        |           |              |             |               |                                                                                     | 2    | 12.005    | 12.872      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 12.006    | 12.872      | 150 |
| 1.45   | 15.182    | 0.782        | 450         |               |    | 0    | 19.000    | 14.400      | 150 |
| 1.42   | 15.185    | 0.785        | 450         |               |    | 0    | 20.000    | 14.400      | 150 |
| 1.43   | 15.164    | 0.934        | 450         |               |  | 1    | 20.000    | 14.300      | 150 |
|        |           |              |             |               |                                                                                     | 2    | 19.000    | 14.300      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 19.001    | 14.230      | 150 |
| 1.44   | 14.991    | 1.821        | 450         |               |  | 1    | 19.001    | 13.170      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 19.002    | 13.170      | 150 |
| NODE-7 | 14.737    | 1.962        | 300         |               |  | 1    | 19.002    | 12.775      | 150 |
|        |           |              |             |               |                                                                                     | 2    | 12.006    | 12.775      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 12.007    | 12.775      | 150 |
| 1.30   | 14.893    | 2.293        | 1200        |               |  | 1    | 12.007    | 12.600      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 12.008    | 12.600      | 150 |
| 1.46   | 15.176    | 0.706        | 450         |               |  | 0    | 21.000    | 14.470      | 150 |
| 1.49   | 15.127    | 0.657        | 450         |               |  | 0    | 22.000    | 14.470      | 150 |
| 1.47   | 15.137    | 0.837        | 450         |               |  | 1    | 22.000    | 14.370      | 150 |
|        |           |              |             |               |                                                                                     | 2    | 21.000    | 14.370      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 21.001    | 14.300      | 150 |
| 1.48   | 15.039    | 0.909        | 1200        |               |  | 1    | 21.001    | 14.200      | 150 |
|        |           |              |             |               |                                                                                     | 0    | 21.002    | 14.130      | 150 |

**Manhole Schedule**

| Node   | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections | Link                                                                                   | IL<br>(m) | Dia<br>(mm) |
|--------|-----------|--------------|-------------|---------------|-------------|----------------------------------------------------------------------------------------|-----------|-------------|
| NODE-8 | 14.899    | 2.436        | 300         |               |             | 1 21.002 12.563 150<br>2 12.008 12.463 150                                             |           |             |
| 1.31   | 14.887    | 2.457        | 450         |               |             | 0 12.009 12.463 150<br>1 12.009 12.430 150                                             |           |             |
| 1.07   | 14.553    | 2.223        | 450         |               |             | 0 12.010 12.430 150<br>1 12.010 12.330 150<br>2 1.011 12.330 150<br>0 1.012 12.330 150 |           |             |
| 1.50   | 14.186    | 1.436        | 300         |               |             | 0 23.000 12.750 150                                                                    |           |             |
| 1.08   | 13.815    | 1.665        | 450         |               |             | 1 23.000 12.150 150<br>2 1.012 12.150 150<br>0 1.013 12.150 150                        |           |             |
| 1.09   | 13.430    | 1.710        | 1200        |               |             | 1 1.013 11.720 150<br>0 1.014 11.720 150                                               |           |             |
| 1.10   | 13.020    | 1.600        | 1200        |               |             | 1 1.014 11.420 150<br>0 1.015 11.420 150                                               |           |             |
| 1.11   | 13.034    | 1.774        | 1200        |               |             | 1 1.015 11.260 150<br>0 1.016 11.260 150                                               |           |             |
| 4905   | 13.107    | 2.307        | 1200        |               |             | 1 1.016 10.800 150                                                                     |           |             |

### Design Settings

|                       |                   |                                      |               |
|-----------------------|-------------------|--------------------------------------|---------------|
| Rainfall Methodology  | FSR               | Maximum Time of Concentration (mins) | 30.00         |
| Return Period (years) | 10                | Maximum Rainfall (mm/hr)             | 50.0          |
| Additional Flow (%)   | 0                 | Minimum Velocity (m/s)               | 1.00          |
| FSR Region            | England and Wales | Connection Type                      | Level Soffits |
| M5-60 (mm)            | 20.000            | Minimum Backdrop Height (m)          | 0.200         |
| Ratio-R               | 0.400             | Preferred Cover Depth (m)            | 1.200         |
| CV                    | 0.750             | Include Intermediate Ground          | ✓             |
| Time of Entry (mins)  | 5.00              | Enforce best practice design rules   | ✓             |

### Nodes

| Name   | T of E (mins) | Cover Level (m) | Node Type | Diameter (mm) | Width (mm) | Depth (m) |
|--------|---------------|-----------------|-----------|---------------|------------|-----------|
| 1.14   | 5.00          | 15.050          | Manhole   | 450           |            | 0.650     |
| 1.15   |               | 15.050          | Manhole   | 450           |            | 0.820     |
| 1.16   | 5.00          | 15.123          | Manhole   | 450           |            | 1.063     |
| RE1.4  | 5.00          | 15.046          | Manhole   | 450           |            | 0.996     |
| 1.23   | 5.00          | 15.120          | Manhole   | 450           |            | 1.170     |
| 1.17   |               | 15.082          | Manhole   | 600           | 450        | 1.757     |
| 1.25   | 5.00          | 15.148          | Manhole   | 600           | 450        | 1.698     |
| 1.26   | 5.00          | 15.125          | Manhole   | 450           |            | 1.775     |
| 1.24   | 5.00          | 15.157          | Manhole   | 450           |            | 1.657     |
| 1.18   |               | 14.949          | Manhole   | 1200          |            | 1.724     |
| 1.19   | 5.00          | 14.787          | Manhole   | 1200          |            | 1.737     |
| 1.20   | 5.00          | 14.899          | Manhole   | 1200          |            | 2.729     |
| RE1.2  | 5.00          | 15.048          | Manhole   | 250           |            | 1.348     |
| RE1.3  | 5.00          | 15.125          | Manhole   | 250           |            | 1.425     |
| 1.27   | 5.00          | 14.993          | Manhole   | 450           |            | 1.693     |
| NODE-2 | 5.00          | 14.909          | Manhole   | 250           |            | 2.776     |
| 1.21   | 5.00          | 14.640          | Manhole   | 1200          |            | 2.670     |
| 1.22   | 5.00          | 14.778          | Manhole   | 1200          |            | 2.908     |
| 1.01   | 5.00          | 15.165          | Manhole   | 450           |            | 0.815     |
| 1.02   | 5.00          | 15.065          | Manhole   | 450           |            | 1.035     |
| 1.09   | 5.00          | 15.141          | Manhole   | 450           |            | 0.791     |
| 1.03   |               | 15.065          | Manhole   | 450           |            | 1.135     |
| 1.10   | 5.00          | 15.148          | Manhole   | 450           |            | 0.628     |
| 1.11   | 5.00          | 15.148          | Manhole   | 450           |            | 0.798     |
| NODE-1 |               | 15.065          | Manhole   | 300           |            | 1.304     |
| 1.12   | 5.00          | 15.164          | Manhole   | 450           |            | 1.144     |
| 1.04   |               | 15.065          | Manhole   | 450           |            | 1.365     |
| 1.05   |               | 15.119          | Manhole   | 450           |            | 1.609     |
| 1.06   | 5.00          | 15.052          | Manhole   | 450           |            | 1.642     |
| RE1.1  | 5.00          | 15.085          | Manhole   | 250           |            | 0.785     |
| 1.13   | 5.00          | 15.090          | Manhole   | 450           |            | 0.720     |
| 1.07   |               | 14.960          | Manhole   | 1200          |            | 1.730     |
| 1.08   | 5.00          | 14.925          | Manhole   | 1200          |            | 3.055     |
| CS1    |               | 14.867          | Manhole   | 1200          |            | 3.047     |
| DMH    |               | 14.834          | Manhole   | 300           |            | 3.024     |

Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | 1.14    | 1.15    | 2.136      | 0.600       | 14.400    | 14.300    | 0.100    | 21.3        | 150      | 5.02          | 50.0         |
| 1.001 | 1.15    | 1.16    | 3.831      | 0.600       | 14.230    | 14.130    | 0.100    | 38.3        | 150      | 5.06          | 50.0         |
| 1.002 | 1.16    | 1.17    | 3.397      | 0.600       | 14.060    | 13.850    | 0.210    | 16.2        | 150      | 5.08          | 50.0         |
| 2.000 | RE1.4   | 1.23    | 5.320      | 0.600       | 14.050    | 13.950    | 0.100    | 53.2        | 150      | 5.06          | 50.0         |
| 2.001 | 1.23    | 1.17    | 2.963      | 0.600       | 13.950    | 13.850    | 0.100    | 29.6        | 150      | 5.09          | 50.0         |
| 1.003 | 1.17    | 1.18    | 9.627      | 0.600       | 13.325    | 13.225    | 0.100    | 96.3        | 150      | 5.25          | 50.0         |
| 3.000 | 1.25    | 1.26    | 5.591      | 0.600       | 13.450    | 13.350    | 0.100    | 55.9        | 150      | 5.07          | 50.0         |
| 3.001 | 1.26    | 1.18    | 4.834      | 0.600       | 13.350    | 13.225    | 0.125    | 38.7        | 150      | 5.12          | 50.0         |
| 4.000 | 1.24    | 1.18    | 4.093      | 0.600       | 13.500    | 13.225    | 0.275    | 14.9        | 150      | 5.03          | 50.0         |
| 1.004 | 1.18    | 1.19    | 7.282      | 0.600       | 13.225    | 13.125    | 0.100    | 72.8        | 150      | 5.35          | 50.0         |
| 1.005 | 1.19    | 1.20    | 24.622     | 0.600       | 13.050    | 12.245    | 0.805    | 20.6        | 150      | 5.57          | 50.0         |
| 1.006 | 1.20    | NODE-2  | 5.601      | 0.600       | 12.170    | 12.133    | 0.037    | 150.0       | 225      | 5.66          | 50.0         |
| 5.000 | RE1.2   | 1.27    | 16.994     | 0.600       | 13.700    | 13.370    | 0.330    | 51.5        | 150      | 5.20          | 50.0         |
| 6.000 | RE1.3   | 1.27    | 9.612      | 0.600       | 13.700    | 13.370    | 0.330    | 29.1        | 150      | 5.09          | 50.0         |
| 5.001 | 1.27    | NODE-2  | 6.060      | 0.600       | 13.300    | 12.208    | 1.092    | 5.5         | 150      | 5.23          | 50.0         |
| 1.007 | NODE-2  | 1.21    | 24.246     | 0.600       | 12.133    | 11.970    | 0.163    | 148.7       | 225      | 6.04          | 50.0         |
| 1.008 | 1.21    | 1.22    | 12.149     | 0.600       | 11.970    | 11.870    | 0.100    | 121.5       | 225      | 6.21          | 50.0         |
| 1.009 | 1.22    | CS1     | 4.721      | 0.600       | 11.870    | 11.820    | 0.050    | 94.4        | 225      | 6.27          | 50.0         |
| 7.000 | 1.01    | 1.02    | 3.989      | 0.600       | 14.350    | 14.100    | 0.250    | 16.0        | 150      | 5.03          | 50.0         |
| 7.001 | 1.02    | 1.03    | 5.582      | 0.600       | 14.030    | 13.930    | 0.100    | 55.8        | 150      | 5.10          | 50.0         |
| 8.000 | 1.09    | 1.03    | 2.812      | 0.600       | 14.350    | 14.000    | 0.350    | 8.0         | 150      | 5.01          | 50.0         |
| 7.002 | 1.03    | NODE-1  | 17.618     | 0.600       | 13.930    | 13.761    | 0.169    | 104.2       | 150      | 5.39          | 50.0         |
| 9.000 | 1.10    | 1.11    | 3.539      | 0.600       | 14.520    | 14.420    | 0.100    | 35.4        | 150      | 5.03          | 50.0         |
| 9.001 | 1.11    | NODE-1  | 4.104      | 0.600       | 14.350    | 13.761    | 0.589    | 7.0         | 150      | 5.05          | 50.0         |

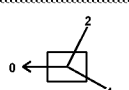
| Name  | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|---------|-----------|-----------|------------|-------------|----------------|--------------------|
| 1.000 | 1.14    | 2.194     | 38.8      | 1.4        | 0.010       | 19             | 1.023              |
| 1.001 | 1.15    | 1.631     | 28.8      | 1.4        | 0.010       | 22             | 0.831              |
| 1.002 | 1.16    | 2.517     | 44.5      | 3.1        | 0.023       | 27             | 1.450              |
| 2.000 | RE1.4   | 1.382     | 24.4      | 0.4        | 0.003       | 14             | 0.519              |
| 2.001 | 1.23    | 1.856     | 32.8      | 0.9        | 0.007       | 17             | 0.812              |
| 1.003 | 1.17    | 1.024     | 18.1      | 4.1        | 0.030       | 48             | 0.828              |
| 3.000 | 1.25    | 1.348     | 23.8      | 0.9        | 0.007       | 20             | 0.651              |
| 3.001 | 1.26    | 1.623     | 28.7      | 1.9        | 0.014       | 26             | 0.920              |
| 4.000 | 1.24    | 2.624     | 46.4      | 0.9        | 0.007       | 15             | 1.047              |
| 1.004 | 1.18    | 1.179     | 20.8      | 6.9        | 0.051       | 59             | 1.061              |
| 1.005 | 1.19    | 1.827     | 32.3      | 11.1       | 0.082       | 61             | 1.660              |
| 1.006 | 1.20    | 1.065     | 42.3      | 14.4       | 0.106       | 90             | 0.964              |
| 5.000 | RE1.2   | 1.405     | 24.8      | 0.4        | 0.003       | 13             | 0.512              |
| 6.000 | RE1.3   | 1.872     | 33.1      | 0.7        | 0.005       | 15             | 0.745              |
| 5.001 | 1.27    | 4.308     | 76.1      | 1.9        | 0.014       | 16             | 1.810              |
| 1.007 | NODE-2  | 1.070     | 42.5      | 19.5       | 0.144       | 107            | 1.046              |
| 1.008 | 1.21    | 1.185     | 47.1      | 23.4       | 0.173       | 112            | 1.183              |
| 1.009 | 1.22    | 1.346     | 53.5      | 25.6       | 0.189       | 109            | 1.330              |
| 7.000 | 1.01    | 2.534     | 44.8      | 0.8        | 0.006       | 14             | 0.985              |
| 7.001 | 1.02    | 1.349     | 23.8      | 1.2        | 0.009       | 23             | 0.709              |
| 8.000 | 1.09    | 3.577     | 63.2      | 0.4        | 0.003       | 8              | 0.977              |
| 7.002 | 1.03    | 0.964     | 17.4      | 1.6        | 0.012       | 31             | 0.615              |
| 9.000 | 1.10    | 1.697     | 30.0      | 1.2        | 0.009       | 21             | 0.836              |
| 9.001 | 1.11    | 3.841     | 67.9      | 1.8        | 0.013       | 17             | 1.651              |

## Links

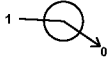
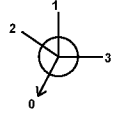
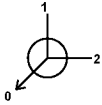
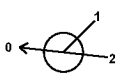
| Name   | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|--------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 7.003  | NODE-1  | 1.04    | 6.275      | 0.600       | 13.761    | 13.700    | 0.061    | 102.9       | 150      | 5.50          | 50.0         |
| 10.000 | 1.12    | 1.04    | 2.827      | 0.600       | 14.020    | 13.770    | 0.250    | 11.3        | 150      | 5.02          | 50.0         |
| 7.004  | 1.04    | 1.05    | 8.704      | 0.600       | 13.700    | 13.510    | 0.190    | 45.8        | 150      | 5.60          | 50.0         |
| 7.005  | 1.05    | 1.06    | 8.294      | 0.600       | 13.510    | 13.410    | 0.100    | 82.9        | 150      | 5.72          | 50.0         |
| 7.006  | 1.06    | 1.07    | 6.592      | 0.600       | 13.410    | 13.310    | 0.100    | 65.9        | 150      | 5.81          | 50.0         |
| 11.000 | RE1.1   | 1.07    | 7.970      | 0.600       | 14.300    | 14.170    | 0.130    | 61.3        | 150      | 5.10          | 50.0         |
| 12.000 | 1.13    | 1.07    | 3.825      | 0.600       | 14.370    | 14.170    | 0.200    | 19.1        | 150      | 5.03          | 50.0         |
| 7.007  | 1.07    | 1.08    | 22.215     | 0.600       | 13.230    | 13.080    | 0.150    | 148.1       | 225      | 6.16          | 50.0         |
| 7.008  | 1.08    | CS1     | 3.828      | 0.600       | 11.870    | 11.820    | 0.050    | 76.6        | 225      | 6.20          | 50.0         |
| 1.010  | CS1     | DMH     | 1.417      | 0.600       | 11.820    | 11.810    | 0.010    | 141.7       | 225      | 6.29          | 50.0         |

| Name   | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) | Pro Depth (mm) | Pro Velocity (m/s) |
|--------|---------|-----------|-----------|------------|-------------|----------------|--------------------|
| 7.003  | NODE-1  | 0.996     | 17.5      | 3.4        | 0.025       | 45             | 0.769              |
| 10.000 | 1.12    | 3.012     | 53.2      | 0.7        | 0.005       | 12             | 1.041              |
| 7.004  | 1.04    | 1.490     | 26.3      | 4.1        | 0.030       | 40             | 1.081              |
| 7.005  | 1.05    | 1.104     | 19.5      | 4.1        | 0.030       | 47             | 0.876              |
| 7.006  | 1.06    | 1.240     | 21.9      | 5.4        | 0.040       | 51             | 1.029              |
| 11.000 | RE1.1   | 1.286     | 22.7      | 0.3        | 0.002       | 11             | 0.425              |
| 12.000 | 1.13    | 2.313     | 40.9      | 0.7        | 0.005       | 14             | 0.874              |
| 7.007  | 1.07    | 1.072     | 42.6      | 6.4        | 0.047       | 58             | 0.773              |
| 7.008  | 1.08    | 1.496     | 59.5      | 8.7        | 0.064       | 58             | 1.071              |
| 1.010  | CS1     | 1.096     | 43.6      | 34.3       | 0.253       | 151            | 1.210              |

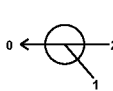
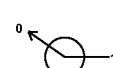
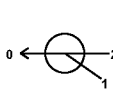
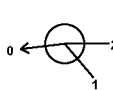
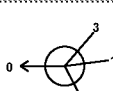
## Manhole Schedule

| Node  | CL (m) | Depth (m) | Dia (mm) | Width (mm) | Connections                                                                         | Link | IL (m) | Dia (mm) |
|-------|--------|-----------|----------|------------|-------------------------------------------------------------------------------------|------|--------|----------|
| 1.14  | 15.050 | 0.650     | 450      |            |  | 0    | 1.000  | 14.400   |
| 1.15  | 15.050 | 0.820     | 450      |            |  | 1    | 1.000  | 14.300   |
|       |        |           |          |            |                                                                                     | 0    | 1.001  | 14.230   |
| 1.16  | 15.123 | 1.063     | 450      |            |  | 1    | 1.001  | 14.130   |
|       |        |           |          |            |                                                                                     | 0    | 1.002  | 14.060   |
| RE1.4 | 15.046 | 0.996     | 450      |            |  | 0    | 2.000  | 14.050   |
| 1.23  | 15.120 | 1.170     | 450      |            |  | 1    | 2.000  | 13.950   |
|       |        |           |          |            |                                                                                     | 0    | 2.001  | 13.950   |
| 1.17  | 15.082 | 1.757     | 600      | 450        |  | 1    | 2.001  | 13.850   |
|       |        |           |          |            |                                                                                     | 2    | 1.002  | 13.850   |
|       |        |           |          |            |                                                                                     | 0    | 1.003  | 13.325   |

**Manhole Schedule**

| Node   | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link  | IL<br>(m) | Dia<br>(mm) |
|--------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|-------|-----------|-------------|
| 1.25   | 15.148    | 1.698        | 600         | 450           |    |       |           |             |
|        |           |              |             |               | 0                                                                                   | 3.000 | 13.450    | 150         |
| 1.26   | 15.125    | 1.775        | 450         |               |    | 1     | 3.000     | 13.350      |
|        |           |              |             |               | 0                                                                                   | 3.001 | 13.350    | 150         |
| 1.24   | 15.157    | 1.657        | 450         |               |    | 0     | 4.000     | 13.500      |
|        |           |              |             |               | 0                                                                                   | 4.000 | 13.225    | 150         |
| 1.18   | 14.949    | 1.724        | 1200        |               |    | 1     | 3.001     | 13.225      |
|        |           |              |             |               | 2                                                                                   | 1.003 | 13.225    | 150         |
|        |           |              |             |               | 3                                                                                   | 1.004 | 13.225    | 150         |
|        |           |              |             |               | 0                                                                                   | 1.004 | 13.125    | 150         |
| 1.19   | 14.787    | 1.737        | 1200        |               |    | 1     | 1.005     | 13.050      |
|        |           |              |             |               | 0                                                                                   | 1.005 | 12.245    | 150         |
| 1.20   | 14.899    | 2.729        | 1200        |               |  | 1     | 1.006     | 12.170      |
|        |           |              |             |               | 0                                                                                   | 5.000 | 13.700    | 150         |
| RE1.2  | 15.048    | 1.348        | 250         |               |  |       |           |             |
|        |           |              |             |               | 0                                                                                   | 6.000 | 13.370    | 150         |
| RE1.3  | 15.125    | 1.425        | 250         |               |  | 0     | 5.000     | 13.370      |
|        |           |              |             |               | 0                                                                                   | 5.001 | 13.300    | 150         |
| 1.27   | 14.993    | 1.693        | 450         |               |  | 1     | 5.001     | 12.208      |
|        |           |              |             |               | 2                                                                                   | 1.006 | 12.133    | 225         |
|        |           |              |             |               | 0                                                                                   | 1.007 | 11.970    | 225         |
| NODE-2 | 14.909    | 2.776        | 250         |               |  | 1     | 1.007     | 11.870      |
|        |           |              |             |               | 0                                                                                   | 1.008 | 11.870    | 225         |
| 1.21   | 14.640    | 2.670        | 1200        |               |  | 1     | 1.008     | 11.870      |
|        |           |              |             |               | 0                                                                                   | 1.009 | 11.870    | 225         |
| 1.22   | 14.778    | 2.908        | 1200        |               |  | 1     | 7.000     | 14.350      |
|        |           |              |             |               | 0                                                                                   |       |           |             |
| 1.01   | 15.165    | 0.815        | 450         |               |  |       |           |             |
|        |           |              |             |               | 0                                                                                   |       |           |             |

**Manhole Schedule**

| Node   | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link   | IL<br>(m) | Dia<br>(mm) |
|--------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|--------|-----------|-------------|
| 1.02   | 15.065    | 1.035        | 450         |               | 1                                                                                   | 7.000  | 14.100    | 150         |
|        |           |              |             |               |    | 0      | 7.001     | 14.030      |
| 1.09   | 15.141    | 0.791        | 450         |               |                                                                                     |        |           |             |
|        |           |              |             |               |    | 0      | 8.000     | 14.350      |
| 1.03   | 15.065    | 1.135        | 450         |               | 1                                                                                   | 8.000  | 14.000    | 150         |
|        |           |              |             |               |    | 2      | 7.001     | 13.930      |
|        |           |              |             |               | 0                                                                                   | 7.002  | 13.930    | 150         |
| 1.10   | 15.148    | 0.628        | 450         |               |                                                                                     |        |           |             |
|        |           |              |             |               |    | 0      | 9.000     | 14.520      |
| 1.11   | 15.148    | 0.798        | 450         |               | 1                                                                                   | 9.000  | 14.420    | 150         |
|        |           |              |             |               |    | 0      | 9.001     | 14.350      |
| NODE-1 | 15.065    | 1.304        | 300         |               | 1                                                                                   | 9.001  | 13.761    | 150         |
|        |           |              |             |               |  | 2      | 7.002     | 13.761      |
|        |           |              |             |               | 0                                                                                   | 7.003  | 13.761    | 150         |
| 1.12   | 15.164    | 1.144        | 450         |               |                                                                                     |        |           |             |
|        |           |              |             |               |  | 0      | 10.000    | 14.020      |
| 1.04   | 15.065    | 1.365        | 450         |               | 1                                                                                   | 10.000 | 13.770    | 150         |
|        |           |              |             |               |  | 2      | 7.003     | 13.700      |
|        |           |              |             |               | 0                                                                                   | 7.004  | 13.700    | 150         |
| 1.05   | 15.119    | 1.609        | 450         |               | 1                                                                                   | 7.004  | 13.510    | 150         |
|        |           |              |             |               |  | 0      | 7.005     | 13.510      |
| 1.06   | 15.052    | 1.642        | 450         |               | 1                                                                                   | 7.005  | 13.410    | 150         |
|        |           |              |             |               |  | 0      | 7.006     | 13.410      |
| RE1.1  | 15.085    | 0.785        | 250         |               |                                                                                     |        |           |             |
|        |           |              |             |               |  | 0      | 11.000    | 14.300      |
| 1.13   | 15.090    | 0.720        | 450         |               |                                                                                     |        |           |             |
|        |           |              |             |               |  | 0      | 12.000    | 14.370      |
| 1.07   | 14.960    | 1.730        | 1200        |               | 1                                                                                   | 12.000 | 14.170    | 150         |
|        |           |              |             |               |  | 2      | 11.000    | 14.170      |
|        |           |              |             |               | 3                                                                                   | 7.006  | 13.310    | 150         |
|        |           |              |             |               | 0                                                                                   | 7.007  | 13.230    | 225         |

### Manhole Schedule

| Node | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                       | Link  | IL<br>(m) | Dia<br>(mm) |
|------|-----------|--------------|-------------|---------------|-----------------------------------------------------------------------------------|-------|-----------|-------------|
| 1.08 | 14.925    | 3.055        | 1200        |               | 1                                                                                 | 7.007 | 11.820    | 225         |
|      |           |              |             |               |  |       |           |             |
| CS1  | 14.867    | 3.047        | 1200        |               | 0                                                                                 | 7.008 | 11.870    | 225         |
|      |           |              |             |               |                                                                                   |       |           |             |
|      |           |              |             |               | 1                                                                                 | 7.008 | 11.820    | 225         |
|      |           |              |             |               | 2                                                                                 | 1.009 | 11.820    | 225         |
|      |           |              |             |               |  |       |           |             |
|      |           |              |             |               | 0                                                                                 | 1.010 | 11.820    | 225         |
| DMH  | 14.834    | 3.024        | 300         |               | 1                                                                                 | 1.010 | 11.810    | 225         |
|      |           |              |             |               |  |       |           |             |

### Simulation Settings

|                      |                   |                            |        |
|----------------------|-------------------|----------------------------|--------|
| Rainfall Methodology | FSR               | Analysis Speed             | Normal |
| FSR Region           | England and Wales | Skip Steady State          | ✓      |
| M5-60 (mm)           | 20.000            | Drain Down Time (mins)     | 240    |
| Ratio-R              | 0.400             | Additional Storage (m³/ha) | 20.0   |
| Summer CV            | 0.750             | Check Discharge Rate(s)    | x      |
| Winter CV            | 0.840             | Check Discharge Volume     | x      |

### Storm Durations

15   30   60   120   180   240   360   480   600   720   960   1440

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 10                       | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

### Node DMH Offline Weir Control

|                  |        |                   |       |                       |       |
|------------------|--------|-------------------|-------|-----------------------|-------|
| Flap Valve       | x      | Design Depth (m)  | 2.500 | Discharge Coefficient | 0.590 |
| Loop to Node     | CS1    | Design Flow (l/s) |       |                       |       |
| Invert Level (m) | 11.810 | Width (m)         | 0.300 |                       |       |

### Node CS1 Depth/Area Storage Structure

|                             |          |               |      |                           |        |
|-----------------------------|----------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000  | Safety Factor | 2.0  | Invert Level (m)          | 11.220 |
| Side Inf Coefficient (m/hr) | 16.16000 | Porosity      | 1.00 | Time to half empty (mins) | 22     |

| Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) |
|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|
| 0.000        | 24.0         | 24.0             | 1.200        | 24.0         | 48.0             | 1.201        | 0.0          | 48.0             |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 1.14    | 10          | 14.421    | 0.021     | 1.4          | 0.0098        | 0.0000     | OK     |
| 15 minute winter | 1.15    | 10          | 14.253    | 0.023     | 1.4          | 0.0037        | 0.0000     | OK     |
| 15 minute winter | 1.16    | 10          | 14.089    | 0.029     | 3.2          | 0.0117        | 0.0000     | OK     |
| 15 minute winter | RE1.4   | 11          | 14.063    | 0.013     | 0.4          | 0.0029        | 0.0000     | OK     |
| 15 minute winter | 1.23    | 10          | 13.969    | 0.019     | 1.0          | 0.0042        | 0.0000     | OK     |
| 15 minute winter | 1.17    | 10          | 13.375    | 0.050     | 4.1          | 0.0135        | 0.0000     | OK     |
| 15 minute winter | 1.25    | 10          | 13.471    | 0.021     | 1.0          | 0.0073        | 0.0000     | OK     |
| 15 minute winter | 1.26    | 10          | 13.377    | 0.027     | 2.0          | 0.0063        | 0.0000     | OK     |
| 15 minute winter | 1.24    | 10          | 13.515    | 0.015     | 1.0          | 0.0037        | 0.0000     | OK     |
| 15 minute winter | 1.18    | 11          | 13.289    | 0.064     | 7.0          | 0.0725        | 0.0000     | OK     |
| 15 minute winter | 1.19    | 11          | 13.113    | 0.063     | 11.1         | 0.0931        | 0.0000     | OK     |
| 15 minute winter | 1.20    | 11          | 12.277    | 0.107     | 14.4         | 0.1401        | 0.0000     | OK     |
| 15 minute winter | RE1.2   | 11          | 13.713    | 0.013     | 0.4          | 0.0013        | 0.0000     | OK     |
| 15 minute winter | RE1.3   | 11          | 13.715    | 0.015     | 0.7          | 0.0018        | 0.0000     | OK     |
| 15 minute winter | 1.27    | 11          | 13.316    | 0.016     | 1.9          | 0.0038        | 0.0000     | OK     |
| 15 minute winter | NODE-2  | 11          | 12.245    | 0.112     | 19.5         | 0.0248        | 0.0000     | OK     |
| 15 minute winter | 1.21    | 11          | 12.094    | 0.124     | 23.4         | 0.1667        | 0.0000     | OK     |
| 15 minute winter | 1.22    | 11          | 11.997    | 0.127     | 25.6         | 0.1570        | 0.0000     | OK     |
| 15 minute winter | 1.01    | 11          | 14.364    | 0.014     | 0.8          | 0.0044        | 0.0000     | OK     |
| 15 minute winter | 1.02    | 11          | 14.053    | 0.023     | 1.2          | 0.0050        | 0.0000     | OK     |
| 15 minute winter | 1.09    | 11          | 14.359    | 0.009     | 0.4          | 0.0021        | 0.0000     | OK     |
| 15 minute winter | 1.03    | 11          | 13.961    | 0.031     | 1.6          | 0.0049        | 0.0000     | OK     |
| 15 minute winter | 1.10    | 10          | 14.542    | 0.022     | 1.3          | 0.0099        | 0.0000     | OK     |
| 15 minute winter | 1.11    | 10          | 14.367    | 0.017     | 1.9          | 0.0044        | 0.0000     | OK     |
| 15 minute winter | NODE-1  | 11          | 13.808    | 0.047     | 3.4          | 0.0034        | 0.0000     | OK     |

| Link Event (Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 1.14    | 1.000 | 1.15    | 1.4           | 0.982          | 0.036    | 0.0030        |                    |
| 15 minute winter            | 1.15    | 1.001 | 1.16    | 1.4           | 0.810          | 0.047    | 0.0064        |                    |
| 15 minute winter            | 1.16    | 1.002 | 1.17    | 3.1           | 1.382          | 0.071    | 0.0077        |                    |
| 15 minute winter            | RE1.4   | 2.000 | 1.23    | 0.4           | 0.407          | 0.016    | 0.0054        |                    |
| 15 minute winter            | 1.23    | 2.001 | 1.17    | 1.0           | 0.799          | 0.030    | 0.0036        |                    |
| 15 minute winter            | 1.17    | 1.003 | 1.18    | 4.0           | 0.663          | 0.223    | 0.0591        |                    |
| 15 minute winter            | 1.25    | 3.000 | 1.26    | 1.0           | 0.552          | 0.041    | 0.0100        |                    |
| 15 minute winter            | 1.26    | 3.001 | 1.18    | 1.9           | 0.484          | 0.068    | 0.0222        |                    |
| 15 minute winter            | 1.24    | 4.000 | 1.18    | 1.0           | 0.597          | 0.021    | 0.0165        |                    |
| 15 minute winter            | 1.18    | 1.004 | 1.19    | 6.9           | 1.015          | 0.333    | 0.0498        |                    |
| 15 minute winter            | 1.19    | 1.005 | 1.20    | 11.2          | 1.636          | 0.346    | 0.1681        |                    |
| 15 minute winter            | 1.20    | 1.006 | NODE-2  | 14.4          | 0.754          | 0.341    | 0.1073        |                    |
| 15 minute winter            | RE1.2   | 5.000 | 1.27    | 0.4           | 0.520          | 0.016    | 0.0130        |                    |
| 15 minute winter            | RE1.3   | 6.000 | 1.27    | 0.7           | 0.748          | 0.021    | 0.0090        |                    |
| 15 minute winter            | 1.27    | 5.001 | NODE-2  | 1.9           | 1.639          | 0.025    | 0.0133        |                    |
| 15 minute winter            | NODE-2  | 1.007 | 1.21    | 19.6          | 0.935          | 0.462    | 0.5093        |                    |
| 15 minute winter            | 1.21    | 1.008 | 1.22    | 23.5          | 1.036          | 0.499    | 0.2753        |                    |
| 15 minute winter            | 1.22    | 1.009 | CS1     | 25.5          | 1.218          | 0.478    | 0.0990        |                    |
| 15 minute winter            | 1.01    | 7.000 | 1.02    | 0.8           | 0.951          | 0.018    | 0.0034        |                    |
| 15 minute winter            | 1.02    | 7.001 | 1.03    | 1.2           | 0.576          | 0.050    | 0.0119        |                    |
| 15 minute winter            | 1.09    | 8.000 | 1.03    | 0.4           | 0.979          | 0.006    | 0.0011        |                    |
| 15 minute winter            | 1.03    | 7.002 | NODE-1  | 1.6           | 0.439          | 0.092    | 0.0648        |                    |
| 15 minute winter            | 1.10    | 9.000 | 1.11    | 1.3           | 0.816          | 0.043    | 0.0055        |                    |
| 15 minute winter            | 1.11    | 9.001 | NODE-1  | 1.9           | 0.894          | 0.027    | 0.0120        |                    |
| 15 minute winter            | NODE-1  | 7.003 | 1.04    | 3.4           | 0.787          | 0.194    | 0.0271        |                    |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 1.12    | 11          | 14.033    | 0.013     | 0.7          | 0.0031        | 0.0000     | OK     |
| 15 minute winter | 1.04    | 11          | 13.741    | 0.041     | 4.1          | 0.0065        | 0.0000     | OK     |
| 15 minute winter | 1.05    | 11          | 13.559    | 0.049     | 4.1          | 0.0078        | 0.0000     | OK     |
| 15 minute winter | 1.06    | 11          | 13.464    | 0.054     | 5.4          | 0.0153        | 0.0000     | OK     |
| 15 minute winter | RE1.1   | 11          | 14.312    | 0.012     | 0.3          | 0.0012        | 0.0000     | OK     |
| 15 minute winter | 1.13    | 11          | 14.384    | 0.014     | 0.7          | 0.0042        | 0.0000     | OK     |
| 15 minute winter | 1.07    | 11          | 13.290    | 0.060     | 6.4          | 0.0675        | 0.0000     | OK     |
| 15 minute winter | 1.08    | 11          | 11.934    | 0.064     | 8.6          | 0.0800        | 0.0000     | OK     |
| 30 minute winter | CS1     | 24          | 11.616    | -0.204    | 26.8         | 9.4955        | 0.0000     | OK     |
| 15 minute summer | DMH     | 1           | 11.810    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |

| Link Event (Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 1.12    | 10.000       | 1.04    | 0.7           | 1.026          | 0.013    | 0.0019        |                    |
| 15 minute winter            | 1.04    | 7.004        | 1.05    | 4.1           | 0.934          | 0.156    | 0.0384        |                    |
| 15 minute winter            | 1.05    | 7.005        | 1.06    | 4.1           | 0.767          | 0.211    | 0.0445        |                    |
| 15 minute winter            | 1.06    | 7.006        | 1.07    | 5.4           | 0.983          | 0.247    | 0.0363        |                    |
| 15 minute winter            | RE1.1   | 11.000       | 1.07    | 0.3           | 0.446          | 0.013    | 0.0053        |                    |
| 15 minute winter            | 1.13    | 12.000       | 1.07    | 0.7           | 0.858          | 0.017    | 0.0031        |                    |
| 15 minute winter            | 1.07    | 7.007        | 1.08    | 6.3           | 0.763          | 0.147    | 0.1831        |                    |
| 15 minute winter            | 1.08    | 7.008        | CS1     | 8.5           | 0.985          | 0.143    | 0.0331        |                    |
| 30 minute winter            | CS1     | 1.010        | DMH     | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 30 minute winter            | CS1     | Infiltration |         | 16.2          |                |          |               |                    |
| 15 minute summer            | DMH     | Weir         | CS1     | 0.0           |                |          |               | 0.0                |

**Results for 10 year Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 1.14    | 10          | 14.430    | 0.030     | 2.7          | 0.0139        | 0.0000     | OK     |
| 15 minute winter | 1.15    | 10          | 14.263    | 0.033     | 2.7          | 0.0053        | 0.0000     | OK     |
| 15 minute winter | 1.16    | 10          | 14.102    | 0.042     | 6.2          | 0.0169        | 0.0000     | OK     |
| 15 minute winter | RE1.4   | 11          | 14.069    | 0.019     | 0.8          | 0.0041        | 0.0000     | OK     |
| 15 minute winter | 1.23    | 10          | 13.976    | 0.026     | 1.9          | 0.0059        | 0.0000     | OK     |
| 15 minute winter | 1.17    | 10          | 13.399    | 0.074     | 8.0          | 0.0201        | 0.0000     | OK     |
| 15 minute winter | 1.25    | 10          | 13.479    | 0.029     | 1.9          | 0.0102        | 0.0000     | OK     |
| 15 minute winter | 1.26    | 10          | 13.387    | 0.037     | 3.8          | 0.0087        | 0.0000     | OK     |
| 15 minute winter | 1.24    | 10          | 13.521    | 0.021     | 1.9          | 0.0051        | 0.0000     | OK     |
| 15 minute winter | 1.18    | 11          | 13.323    | 0.098     | 13.6         | 0.1104        | 0.0000     | OK     |
| 15 minute winter | 1.19    | 10          | 13.143    | 0.093     | 21.8         | 0.1387        | 0.0000     | OK     |
| 15 minute winter | 1.20    | 11          | 12.348    | 0.178     | 28.2         | 0.2325        | 0.0000     | OK     |
| 15 minute winter | RE1.2   | 11          | 13.719    | 0.019     | 0.8          | 0.0018        | 0.0000     | OK     |
| 15 minute winter | RE1.3   | 10          | 13.721    | 0.021     | 1.4          | 0.0025        | 0.0000     | OK     |
| 15 minute winter | 1.27    | 10          | 13.323    | 0.023     | 3.8          | 0.0052        | 0.0000     | OK     |
| 15 minute winter | NODE-2  | 11          | 12.316    | 0.183     | 37.8         | 0.0406        | 0.0000     | OK     |
| 15 minute winter | 1.21    | 11          | 12.188    | 0.218     | 45.2         | 0.2941        | 0.0000     | OK     |
| 15 minute winter | 1.22    | 11          | 12.073    | 0.203     | 49.1         | 0.2516        | 0.0000     | OK     |
| 15 minute winter | 1.01    | 10          | 14.370    | 0.020     | 1.6          | 0.0062        | 0.0000     | OK     |
| 15 minute winter | 1.02    | 10          | 14.063    | 0.033     | 2.4          | 0.0071        | 0.0000     | OK     |
| 15 minute winter | 1.09    | 10          | 14.362    | 0.012     | 0.8          | 0.0029        | 0.0000     | OK     |
| 15 minute winter | 1.03    | 11          | 13.973    | 0.043     | 3.2          | 0.0069        | 0.0000     | OK     |
| 15 minute winter | 1.10    | 10          | 14.551    | 0.031     | 2.5          | 0.0140        | 0.0000     | OK     |
| 15 minute winter | 1.11    | 10          | 14.373    | 0.023     | 3.6          | 0.0060        | 0.0000     | OK     |
| 15 minute winter | NODE-1  | 11          | 13.830    | 0.069     | 6.7          | 0.0049        | 0.0000     | OK     |

| Link Event (Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 1.14    | 1.000 | 1.15    | 2.7           | 1.169          | 0.069    | 0.0049        |                    |
| 15 minute winter            | 1.15    | 1.001 | 1.16    | 2.7           | 0.973          | 0.093    | 0.0105        |                    |
| 15 minute winter            | 1.16    | 1.002 | 1.17    | 6.1           | 1.644          | 0.138    | 0.0127        |                    |
| 15 minute winter            | RE1.4   | 2.000 | 1.23    | 0.8           | 0.495          | 0.033    | 0.0088        |                    |
| 15 minute winter            | 1.23    | 2.001 | 1.17    | 1.9           | 0.960          | 0.057    | 0.0058        |                    |
| 15 minute winter            | 1.17    | 1.003 | 1.18    | 8.0           | 0.764          | 0.440    | 0.1002        |                    |
| 15 minute winter            | 1.25    | 3.000 | 1.26    | 1.9           | 0.661          | 0.079    | 0.0160        |                    |
| 15 minute winter            | 1.26    | 3.001 | 1.18    | 3.8           | 0.501          | 0.131    | 0.0373        |                    |
| 15 minute winter            | 1.24    | 4.000 | 1.18    | 1.9           | 0.593          | 0.041    | 0.0277        |                    |
| 15 minute winter            | 1.18    | 1.004 | 1.19    | 13.5          | 1.182          | 0.647    | 0.0831        |                    |
| 15 minute winter            | 1.19    | 1.005 | 1.20    | 21.7          | 1.843          | 0.672    | 0.2973        |                    |
| 15 minute winter            | 1.20    | 1.006 | NODE-2  | 28.0          | 0.833          | 0.661    | 0.1912        |                    |
| 15 minute winter            | RE1.2   | 5.000 | 1.27    | 0.8           | 0.640          | 0.032    | 0.0212        |                    |
| 15 minute winter            | RE1.3   | 6.000 | 1.27    | 1.4           | 0.913          | 0.042    | 0.0145        |                    |
| 15 minute winter            | 1.27    | 5.001 | NODE-2  | 3.7           | 1.607          | 0.049    | 0.0461        |                    |
| 15 minute winter            | NODE-2  | 1.007 | 1.21    | 37.8          | 1.028          | 0.889    | 0.8970        |                    |
| 15 minute winter            | 1.21    | 1.008 | 1.22    | 45.0          | 1.163          | 0.954    | 0.4683        |                    |
| 15 minute winter            | 1.22    | 1.009 | CS1     | 48.9          | 1.401          | 0.914    | 0.1635        |                    |
| 15 minute winter            | 1.01    | 7.000 | 1.02    | 1.6           | 1.159          | 0.035    | 0.0055        |                    |
| 15 minute winter            | 1.02    | 7.001 | 1.03    | 2.4           | 0.681          | 0.099    | 0.0195        |                    |
| 15 minute winter            | 1.09    | 8.000 | 1.03    | 0.8           | 1.204          | 0.013    | 0.0019        |                    |
| 15 minute winter            | 1.03    | 7.002 | NODE-1  | 3.2           | 0.527          | 0.182    | 0.1062        |                    |
| 15 minute winter            | 1.10    | 9.000 | 1.11    | 2.5           | 0.977          | 0.082    | 0.0089        |                    |
| 15 minute winter            | 1.11    | 9.001 | NODE-1  | 3.5           | 0.990          | 0.052    | 0.0196        |                    |
| 15 minute winter            | NODE-1  | 7.003 | 1.04    | 6.6           | 0.927          | 0.377    | 0.0448        |                    |

**Results for 10 year Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 1.12    | 10          | 14.038    | 0.018     | 1.4          | 0.0043        | 0.0000     | OK     |
| 15 minute winter | 1.04    | 11          | 13.759    | 0.059     | 7.9          | 0.0093        | 0.0000     | OK     |
| 15 minute winter | 1.05    | 11          | 13.582    | 0.072     | 8.0          | 0.0115        | 0.0000     | OK     |
| 15 minute winter | 1.06    | 11          | 13.491    | 0.081     | 10.6         | 0.0229        | 0.0000     | OK     |
| 15 minute summer | RE1.1   | 11          | 14.316    | 0.016     | 0.5          | 0.0016        | 0.0000     | OK     |
| 15 minute winter | 1.13    | 10          | 14.390    | 0.020     | 1.4          | 0.0059        | 0.0000     | OK     |
| 15 minute winter | 1.07    | 11          | 13.316    | 0.086     | 12.5         | 0.0971        | 0.0000     | OK     |
| 15 minute winter | 1.08    | 11          | 11.964    | 0.094     | 16.8         | 0.1174        | 0.0000     | OK     |
| 30 minute winter | CS1     | 23          | 11.939    | 0.119     | 51.6         | 17.3850       | 0.0000     | OK     |
| 30 minute winter | DMH     | 23          | 11.938    | 0.128     | 0.9          | 0.0091        | 0.0000     | OK     |

| Link Event (Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 1.12    | 10.000       | 1.04    | 1.4           | 1.247          | 0.026    | 0.0031        |                    |
| 15 minute winter            | 1.04    | 7.004        | 1.05    | 8.0           | 1.078          | 0.303    | 0.0645        |                    |
| 15 minute winter            | 1.05    | 7.005        | 1.06    | 8.0           | 0.882          | 0.411    | 0.0755        |                    |
| 15 minute winter            | 1.06    | 7.006        | 1.07    | 10.6          | 1.159          | 0.485    | 0.0605        |                    |
| 15 minute summer            | RE1.1   | 11.000       | 1.07    | 0.5           | 0.520          | 0.022    | 0.0077        |                    |
| 15 minute winter            | 1.13    | 12.000       | 1.07    | 1.4           | 1.043          | 0.034    | 0.0051        |                    |
| 15 minute winter            | 1.07    | 7.007        | 1.08    | 12.4          | 0.915          | 0.290    | 0.3004        |                    |
| 15 minute winter            | 1.08    | 7.008        | CS1     | 16.7          | 1.168          | 0.281    | 0.0578        |                    |
| 30 minute winter            | CS1     | 1.010        | DMH     | 0.9           | 0.133          | 0.021    | 0.0318        |                    |
| 30 minute winter            | CS1     | Infiltration |         | 31.3          |                |          |               |                    |
| 30 minute winter            | DMH     | Weir         | CS1     | 0.9           |                |          |               | 0.1                |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1.14    | 10          | 14.434    | 0.034     | 3.5          | 0.0160        | 0.0000     | OK         |
| 15 minute winter | 1.15    | 10          | 14.268    | 0.038     | 3.5          | 0.0061        | 0.0000     | OK         |
| 15 minute winter | 1.16    | 10          | 14.108    | 0.048     | 7.9          | 0.0196        | 0.0000     | OK         |
| 15 minute winter | RE1.4   | 11          | 14.071    | 0.021     | 1.0          | 0.0045        | 0.0000     | OK         |
| 15 minute winter | 1.23    | 10          | 13.980    | 0.030     | 2.4          | 0.0067        | 0.0000     | OK         |
| 15 minute winter | 1.17    | 10          | 13.412    | 0.087     | 10.3         | 0.0235        | 0.0000     | OK         |
| 15 minute winter | 1.25    | 10          | 13.483    | 0.033     | 2.4          | 0.0116        | 0.0000     | OK         |
| 15 minute winter | 1.26    | 10          | 13.391    | 0.041     | 4.8          | 0.0098        | 0.0000     | OK         |
| 15 minute winter | 1.24    | 10          | 13.523    | 0.023     | 2.4          | 0.0057        | 0.0000     | OK         |
| 15 minute winter | 1.18    | 11          | 13.343    | 0.118     | 17.3         | 0.1334        | 0.0000     | OK         |
| 15 minute winter | 1.19    | 11          | 13.172    | 0.122     | 27.7         | 0.1812        | 0.0000     | OK         |
| 15 minute winter | 1.20    | 11          | 12.594    | 0.424     | 35.0         | 0.5539        | 0.0000     | SURCHARGED |
| 15 minute winter | RE1.2   | 11          | 13.721    | 0.021     | 1.0          | 0.0020        | 0.0000     | OK         |
| 15 minute winter | RE1.3   | 10          | 13.724    | 0.024     | 1.7          | 0.0028        | 0.0000     | OK         |
| 15 minute winter | 1.27    | 10          | 13.325    | 0.025     | 4.8          | 0.0058        | 0.0000     | OK         |
| 15 minute winter | NODE-2  | 11          | 12.551    | 0.418     | 45.9         | 0.0928        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.21    | 11          | 12.327    | 0.357     | 54.2         | 0.4811        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.22    | 11          | 12.144    | 0.274     | 58.7         | 0.3402        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.01    | 10          | 14.373    | 0.023     | 2.1          | 0.0071        | 0.0000     | OK         |
| 15 minute winter | 1.02    | 10          | 14.068    | 0.038     | 3.1          | 0.0082        | 0.0000     | OK         |
| 15 minute winter | 1.09    | 10          | 14.364    | 0.014     | 1.0          | 0.0032        | 0.0000     | OK         |
| 15 minute winter | 1.03    | 11          | 13.979    | 0.049     | 4.1          | 0.0078        | 0.0000     | OK         |
| 15 minute winter | 1.10    | 10          | 14.555    | 0.035     | 3.1          | 0.0157        | 0.0000     | OK         |
| 15 minute winter | 1.11    | 10          | 14.376    | 0.026     | 4.5          | 0.0068        | 0.0000     | OK         |
| 15 minute winter | NODE-1  | 11          | 13.840    | 0.079     | 8.5          | 0.0056        | 0.0000     | OK         |

| Link Event (Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 1.14    | 1.000 | 1.15    | 3.5           | 1.248          | 0.090    | 0.0059        |                    |
| 15 minute winter            | 1.15    | 1.001 | 1.16    | 3.4           | 1.040          | 0.120    | 0.0127        |                    |
| 15 minute winter            | 1.16    | 1.002 | 1.17    | 7.9           | 1.747          | 0.178    | 0.0154        |                    |
| 15 minute winter            | RE1.4   | 2.000 | 1.23    | 1.0           | 0.521          | 0.041    | 0.0104        |                    |
| 15 minute winter            | 1.23    | 2.001 | 1.17    | 2.4           | 1.023          | 0.073    | 0.0069        |                    |
| 15 minute winter            | 1.17    | 1.003 | 1.18    | 10.2          | 0.797          | 0.563    | 0.1222        |                    |
| 15 minute winter            | 1.25    | 3.000 | 1.26    | 2.4           | 0.704          | 0.100    | 0.0190        |                    |
| 15 minute winter            | 1.26    | 3.001 | 1.18    | 4.8           | 0.554          | 0.166    | 0.0453        |                    |
| 15 minute winter            | 1.24    | 4.000 | 1.18    | 2.4           | 0.791          | 0.052    | 0.0338        |                    |
| 15 minute winter            | 1.18    | 1.004 | 1.19    | 17.2          | 1.235          | 0.826    | 0.1013        |                    |
| 15 minute winter            | 1.19    | 1.005 | 1.20    | 27.2          | 1.832          | 0.843    | 0.4053        |                    |
| 15 minute winter            | 1.20    | 1.006 | NODE-2  | 33.5          | 0.842          | 0.790    | 0.2228        |                    |
| 15 minute winter            | RE1.2   | 5.000 | 1.27    | 1.0           | 0.684          | 0.040    | 0.0248        |                    |
| 15 minute winter            | RE1.3   | 6.000 | 1.27    | 1.7           | 0.968          | 0.051    | 0.0167        |                    |
| 15 minute winter            | 1.27    | 5.001 | NODE-2  | 4.8           | 1.554          | 0.062    | 0.0593        |                    |
| 15 minute winter            | NODE-2  | 1.007 | 1.21    | 45.1          | 1.134          | 1.061    | 0.9643        |                    |
| 15 minute winter            | 1.21    | 1.008 | 1.22    | 53.7          | 1.349          | 1.139    | 0.4832        |                    |
| 15 minute winter            | 1.22    | 1.009 | CS1     | 58.4          | 1.471          | 1.092    | 0.1878        |                    |
| 15 minute winter            | 1.01    | 7.000 | 1.02    | 2.1           | 1.252          | 0.047    | 0.0067        |                    |
| 15 minute winter            | 1.02    | 7.001 | 1.03    | 3.1           | 0.729          | 0.129    | 0.0236        |                    |
| 15 minute winter            | 1.09    | 8.000 | 1.03    | 1.0           | 1.287          | 0.016    | 0.0022        |                    |
| 15 minute winter            | 1.03    | 7.002 | NODE-1  | 4.1           | 0.563          | 0.233    | 0.1275        |                    |
| 15 minute winter            | 1.10    | 9.000 | 1.11    | 3.1           | 1.035          | 0.102    | 0.0105        |                    |
| 15 minute winter            | 1.11    | 9.001 | NODE-1  | 4.5           | 1.085          | 0.066    | 0.0235        |                    |
| 15 minute winter            | NODE-1  | 7.003 | 1.04    | 8.4           | 0.979          | 0.480    | 0.0539        |                    |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event                     | US Node | Peak (mins)  | Level (m) | Depth (m)     | Inflow (l/s)   | Node Vol (m³) | Flood (m³)    | Status             |
|--------------------------------|---------|--------------|-----------|---------------|----------------|---------------|---------------|--------------------|
| 15 minute winter               | 1.12    | 10           | 14.039    | 0.019         | 1.7            | 0.0048        | 0.0000        | OK                 |
| 15 minute winter               | 1.04    | 11           | 13.768    | 0.068         | 10.0           | 0.0108        | 0.0000        | OK                 |
| 15 minute winter               | 1.05    | 11           | 13.595    | 0.085         | 10.1           | 0.0135        | 0.0000        | OK                 |
| 15 minute winter               | 1.06    | 11           | 13.505    | 0.095         | 13.4           | 0.0268        | 0.0000        | OK                 |
| 15 minute winter               | RE1.1   | 11           | 14.318    | 0.018         | 0.7            | 0.0018        | 0.0000        | OK                 |
| 15 minute winter               | 1.13    | 10           | 14.392    | 0.022         | 1.7            | 0.0065        | 0.0000        | OK                 |
| 15 minute winter               | 1.07    | 11           | 13.328    | 0.098         | 15.8           | 0.1113        | 0.0000        | OK                 |
| 30 minute winter               | 1.08    | 23           | 12.102    | 0.232         | 16.8           | 0.2877        | 0.0000        | SURCHARGED         |
| 30 minute winter               | CS1     | 23           | 12.099    | 0.279         | 65.8           | 21.4032       | 0.0000        | SURCHARGED         |
| 15 minute winter               | DMH     | 16           | 12.100    | 0.290         | 2.6            | 0.0206        | 0.0000        | OK                 |
| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node   | Outflow (l/s) | Velocity (m/s) | Flow/Cap      | Link Vol (m³) | Discharge Vol (m³) |
| 15 minute winter               | 1.12    | 10.000       | 1.04      | 1.7           | 1.319          | 0.032         | 0.0036        |                    |
| 15 minute winter               | 1.04    | 7.004        | 1.05      | 10.1          | 1.124          | 0.382         | 0.0782        |                    |
| 15 minute winter               | 1.05    | 7.005        | 1.06      | 10.1          | 0.918          | 0.519         | 0.0914        |                    |
| 15 minute winter               | 1.06    | 7.006        | 1.07      | 13.5          | 1.220          | 0.615         | 0.0727        |                    |
| 15 minute winter               | RE1.1   | 11.000       | 1.07      | 0.7           | 0.574          | 0.031         | 0.0097        |                    |
| 15 minute winter               | 1.13    | 12.000       | 1.07      | 1.7           | 1.103          | 0.041         | 0.0058        |                    |
| 15 minute winter               | 1.07    | 7.007        | 1.08      | 15.7          | 0.974          | 0.369         | 0.3591        |                    |
| 30 minute winter               | 1.08    | 7.008        | CS1       | 16.7          | 1.168          | 0.281         | 0.1522        |                    |
| 30 minute winter               | CS1     | 1.010        | DMH       | 2.2           | 0.174          | 0.050         | 0.0564        |                    |
| 30 minute winter               | CS1     | Infiltration |           | 38.8          |                |               |               |                    |
| 15 minute winter               | DMH     | Weir         | CS1       | 0.5           |                |               |               | 0.0                |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 1.14    | 10          | 14.448    | 0.048     | 6.3          | 0.0224        | 0.0000     | OK         |
| 15 minute winter | 1.15    | 10          | 14.283    | 0.053     | 6.3          | 0.0084        | 0.0000     | OK         |
| 15 minute winter | 1.16    | 13          | 14.161    | 0.101     | 14.4         | 0.0410        | 0.0000     | OK         |
| 15 minute winter | RE1.4   | 13          | 14.157    | 0.107     | 2.7          | 0.0235        | 0.0000     | OK         |
| 15 minute winter | 1.23    | 13          | 14.156    | 0.206     | 6.1          | 0.0467        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.17    | 13          | 14.155    | 0.830     | 18.7         | 0.2242        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.25    | 13          | 14.122    | 0.672     | 6.9          | 0.2365        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.26    | 13          | 14.120    | 0.770     | 6.7          | 0.1833        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.24    | 13          | 14.115    | 0.615     | 4.4          | 0.1502        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.18    | 13          | 14.114    | 0.889     | 23.0         | 1.0051        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.19    | 13          | 14.016    | 0.966     | 35.3         | 1.4373        | 0.0000     | SURCHARGED |
| 30 minute winter | 1.20    | 24          | 13.560    | 1.390     | 37.7         | 1.8170        | 0.0000     | SURCHARGED |
| 15 minute winter | RE1.2   | 10          | 13.728    | 0.028     | 1.9          | 0.0027        | 0.0000     | OK         |
| 15 minute winter | RE1.3   | 10          | 13.732    | 0.032     | 3.1          | 0.0038        | 0.0000     | OK         |
| 30 minute winter | 1.27    | 24          | 13.542    | 0.242     | 6.8          | 0.0556        | 0.0000     | SURCHARGED |
| 30 minute winter | NODE-2  | 24          | 13.538    | 1.405     | 53.3         | 0.3120        | 0.0000     | SURCHARGED |
| 30 minute winter | 1.21    | 24          | 13.429    | 1.459     | 64.9         | 1.9663        | 0.0000     | SURCHARGED |
| 30 minute winter | 1.22    | 24          | 13.343    | 1.473     | 70.0         | 1.8286        | 0.0000     | SURCHARGED |
| 15 minute winter | 1.01    | 10          | 14.382    | 0.032     | 3.8          | 0.0097        | 0.0000     | OK         |
| 15 minute winter | 1.02    | 10          | 14.084    | 0.054     | 5.7          | 0.0116        | 0.0000     | OK         |
| 15 minute winter | 1.09    | 10          | 14.369    | 0.019     | 1.9          | 0.0044        | 0.0000     | OK         |
| 15 minute winter | 1.03    | 10          | 13.998    | 0.068     | 7.5          | 0.0109        | 0.0000     | OK         |
| 15 minute winter | 1.10    | 10          | 14.569    | 0.049     | 5.7          | 0.0220        | 0.0000     | OK         |
| 15 minute winter | 1.11    | 10          | 14.385    | 0.035     | 8.1          | 0.0091        | 0.0000     | OK         |
| 15 minute winter | NODE-1  | 11          | 13.887    | 0.126     | 15.6         | 0.0089        | 0.0000     | OK         |

| Link Event (Upstream Depth) | US Node | Link  | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 1.14    | 1.000 | 1.15    | 6.3           | 1.436          | 0.162    | 0.0093        |                    |
| 15 minute winter            | 1.15    | 1.001 | 1.16    | 6.2           | 1.207          | 0.216    | 0.0197        |                    |
| 15 minute winter            | 1.16    | 1.002 | 1.17    | 14.3          | 2.001          | 0.322    | 0.0514        |                    |
| 15 minute winter            | RE1.4   | 2.000 | 1.23    | 1.9           | 0.610          | 0.078    | 0.0826        |                    |
| 15 minute winter            | 1.23    | 2.001 | 1.17    | 4.4           | 1.195          | 0.133    | 0.0522        |                    |
| 15 minute winter            | 1.17    | 1.003 | 1.18    | 15.0          | 0.850          | 0.827    | 0.1695        |                    |
| 15 minute winter            | 1.25    | 3.000 | 1.26    | 3.5           | 0.761          | 0.146    | 0.0984        |                    |
| 15 minute winter            | 1.26    | 3.001 | 1.18    | 6.5           | 0.605          | 0.226    | 0.0851        |                    |
| 15 minute winter            | 1.24    | 4.000 | 1.18    | 3.9           | 0.854          | 0.085    | 0.0721        |                    |
| 15 minute winter            | 1.18    | 1.004 | 1.19    | 20.1          | 1.195          | 0.964    | 0.1282        |                    |
| 15 minute winter            | 1.19    | 1.005 | 1.20    | 28.9          | 1.818          | 0.895    | 0.4335        |                    |
| 30 minute winter            | 1.20    | 1.006 | NODE-2  | 35.1          | 0.882          | 0.829    | 0.2228        |                    |
| 15 minute winter            | RE1.2   | 5.000 | 1.27    | 1.9           | 0.819          | 0.075    | 0.0386        |                    |
| 15 minute winter            | RE1.3   | 6.000 | 1.27    | 3.1           | 1.151          | 0.093    | 0.0257        |                    |
| 30 minute winter            | 1.27    | 5.001 | NODE-2  | 6.8           | 1.613          | 0.089    | 0.1067        |                    |
| 30 minute winter            | NODE-2  | 1.007 | 1.21    | 50.9          | 1.280          | 1.197    | 0.9643        |                    |
| 30 minute winter            | 1.21    | 1.008 | 1.22    | 62.2          | 1.565          | 1.321    | 0.4832        |                    |
| 30 minute winter            | 1.22    | 1.009 | CS1     | 67.7          | 1.704          | 1.266    | 0.1878        |                    |
| 15 minute winter            | 1.01    | 7.000 | 1.02    | 3.8           | 1.471          | 0.084    | 0.0102        |                    |
| 15 minute winter            | 1.02    | 7.001 | 1.03    | 5.6           | 0.840          | 0.237    | 0.0375        |                    |
| 15 minute winter            | 1.09    | 8.000 | 1.03    | 1.9           | 1.539          | 0.030    | 0.0035        |                    |
| 15 minute winter            | 1.03    | 7.002 | NODE-1  | 7.4           | 0.633          | 0.427    | 0.2073        |                    |
| 15 minute winter            | 1.10    | 9.000 | 1.11    | 5.7           | 1.208          | 0.188    | 0.0166        |                    |
| 15 minute winter            | 1.11    | 9.001 | NODE-1  | 8.1           | 1.331          | 0.120    | 0.0386        |                    |
| 15 minute winter            | NODE-1  | 7.003 | 1.04    | 15.2          | 1.078          | 0.868    | 0.0956        |                    |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.97%**

| Node Event                  | US Node | Peak (mins)  | Level (m) | Depth (m)     | Inflow (l/s)   | Node Vol (m³) | Flood (m³)    | Status             |
|-----------------------------|---------|--------------|-----------|---------------|----------------|---------------|---------------|--------------------|
| 15 minute winter            | 1.12    | 9            | 14.046    | 0.026         | 3.1            | 0.0064        | 0.0000        | OK                 |
| 15 minute winter            | 1.04    | 11           | 13.817    | 0.117         | 18.3           | 0.0185        | 0.0000        | OK                 |
| 15 minute winter            | 1.05    | 11           | 13.722    | 0.212         | 18.5           | 0.0337        | 0.0000        | SURCHARGED         |
| 15 minute winter            | 1.06    | 11           | 13.609    | 0.199         | 23.4           | 0.0560        | 0.0000        | SURCHARGED         |
| 15 minute winter            | RE1.1   | 10           | 14.325    | 0.025         | 1.3            | 0.0025        | 0.0000        | OK                 |
| 15 minute winter            | 1.13    | 10           | 14.400    | 0.030         | 3.1            | 0.0089        | 0.0000        | OK                 |
| 15 minute winter            | 1.07    | 11           | 13.368    | 0.138         | 27.5           | 0.1563        | 0.0000        | OK                 |
| 30 minute winter            | 1.08    | 24           | 13.297    | 1.427         | 30.8           | 1.7719        | 0.0000        | SURCHARGED         |
| 30 minute winter            | CS1     | 25           | 13.288    | 1.468         | 213.1          | 30.4730       | 0.0000        | SURCHARGED         |
| 30 minute winter            | DMH     | 24           | 13.322    | 1.512         | 251.3          | 0.1073        | 0.0000        | OK                 |
| Link Event (Upstream Depth) | US Node | Link         | DS Node   | Outflow (l/s) | Velocity (m/s) | Flow/Cap      | Link Vol (m³) | Discharge Vol (m³) |
| 15 minute winter            | 1.12    | 10.000       | 1.04      | 3.1           | 1.534          | 0.058         | 0.0092        |                    |
| 15 minute winter            | 1.04    | 7.004        | 1.05      | 18.5          | 1.206          | 0.702         | 0.1405        |                    |
| 15 minute winter            | 1.05    | 7.005        | 1.06      | 17.7          | 1.008          | 0.910         | 0.1460        |                    |
| 15 minute winter            | 1.06    | 7.006        | 1.07      | 23.3          | 1.322          | 1.062         | 0.1134        |                    |
| 15 minute winter            | RE1.1   | 11.000       | 1.07      | 1.3           | 0.682          | 0.056         | 0.0148        |                    |
| 15 minute winter            | 1.13    | 12.000       | 1.07      | 3.1           | 1.302          | 0.076         | 0.0091        |                    |
| 15 minute winter            | 1.07    | 7.007        | 1.08      | 27.2          | 1.111          | 0.639         | 0.5460        |                    |
| 30 minute winter            | 1.08    | 7.008        | CS1       | 28.4          | 1.254          | 0.477         | 0.1522        |                    |
| 30 minute winter            | CS1     | 1.010        | DMH       | 96.0          | 2.414          | 2.203         | 0.0564        |                    |
| 30 minute winter            | CS1     | Infiltration |           | 53.9          |                |               |               |                    |
| 30 minute winter            | DMH     | Weir         | CS1       | 62.1          |                |               |               | -7.2               |

### Design Settings

|                       |                   |                                      |               |
|-----------------------|-------------------|--------------------------------------|---------------|
| Rainfall Methodology  | FSR               | Maximum Time of Concentration (mins) | 30.00         |
| Return Period (years) | 100               | Maximum Rainfall (mm/hr)             | 50.0          |
| Additional Flow (%)   | 0                 | Minimum Velocity (m/s)               | 1.00          |
| FSR Region            | England and Wales | Connection Type                      | Level Soffits |
| M5-60 (mm)            | 20.000            | Minimum Backdrop Height (m)          | 0.200         |
| Ratio-R               | 0.450             | Preferred Cover Depth (m)            | 1.200         |
| CV                    | 0.750             | Include Intermediate Ground          | ✓             |
| Time of Entry (mins)  | 5.00              | Enforce best practice design rules   | ✓             |

### Nodes

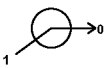
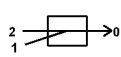
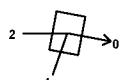
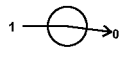
| Name | T of E<br>(mins) | Cover<br>Level<br>(m) | Node<br>Type | Diameter<br>(mm) | Width<br>(mm) | Depth<br>(m) |
|------|------------------|-----------------------|--------------|------------------|---------------|--------------|
| 2.01 | 5.00             | 15.146                | Manhole      | 450              |               | 0.696        |
| 2.02 | 5.00             | 15.064                | Manhole      | 450              |               | 0.834        |
| 2.07 | 5.00             | 15.113                | Manhole      | 450              |               | 0.713        |
| 2.03 | 5.00             | 15.064                | Manhole      | 600              | 450           | 1.584        |
| 2.08 | 5.00             | 15.132                | Manhole      | 450              |               | 0.732        |
| 2.04 | 5.00             | 15.065                | Manhole      | 450              | 600           | 1.705        |
| RE2  | 5.00             | 15.103                | Manhole      | 300              |               | 0.903        |
| RE1  | 5.00             | 15.180                | Manhole      | 300              |               | 0.980        |
| 2.06 | 5.00             | 15.040                | Manhole      | 1200             |               | 1.910        |
| CS2  |                  | 14.850                | Manhole      | 300              |               | 1.820        |
| DMH  |                  | 14.850                | Manhole      | 300              |               | 1.830        |

### Links

| Name  | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | T of C<br>(mins) | Rain<br>(mm/hr) |
|-------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 1.000 | 2.01       | 2.02       | 3.916         | 0.600          | 14.450       | 14.300       | 0.150       | 26.1           | 150         | 5.03             | 50.0            |
| 1.001 | 2.02       | 2.03       | 7.719         | 0.600          | 14.230       | 14.130       | 0.100       | 77.2           | 150         | 5.15             | 50.0            |
| 2.000 | 2.07       | 2.03       | 2.567         | 0.600          | 14.400       | 14.300       | 0.100       | 25.7           | 150         | 5.02             | 50.0            |
| 1.002 | 2.03       | 2.04       | 15.142        | 0.600          | 13.480       | 13.360       | 0.120       | 126.2          | 150         | 5.43             | 50.0            |
| 3.000 | 2.08       | 2.04       | 1.579         | 0.600          | 14.400       | 14.300       | 0.100       | 15.8           | 150         | 5.01             | 50.0            |
| 1.003 | 2.04       | 2.06       | 14.398        | 0.600          | 13.360       | 13.205       | 0.155       | 92.9           | 150         | 5.66             | 50.0            |
| 4.000 | RE2        | 2.06       | 11.250        | 0.600          | 14.200       | 14.000       | 0.200       | 56.3           | 150         | 5.14             | 50.0            |
| 5.000 | RE1        | 2.06       | 11.590        | 0.600          | 14.200       | 13.995       | 0.205       | 56.5           | 150         | 5.14             | 50.0            |
| 1.004 | 2.06       | CS2        | 4.379         | 0.600          | 13.130       | 13.080       | 0.050       | 87.6           | 225         | 5.71             | 50.0            |
| 1.005 | CS2        | DMH        | 2.000         | 0.600          | 13.030       | 13.020       | 0.010       | 200.0          | 100         | 5.77             | 50.0            |

| Name  | US<br>Node | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | Σ Area<br>(ha) |
|-------|------------|--------------|--------------|---------------|----------------|
| 1.000 | 2.01       | 1.978        | 35.0         | 0.9           | 0.007          |
| 1.001 | 2.02       | 1.145        | 20.2         | 1.4           | 0.010          |
| 2.000 | 2.07       | 1.995        | 35.3         | 1.8           | 0.013          |
| 1.002 | 2.03       | 0.893        | 15.8         | 3.7           | 0.027          |
| 3.000 | 2.08       | 2.547        | 45.0         | 1.1           | 0.008          |
| 1.003 | 2.04       | 1.043        | 18.4         | 5.6           | 0.041          |
| 4.000 | RE2        | 1.344        | 23.7         | 0.5           | 0.004          |
| 5.000 | RE1        | 1.340        | 23.7         | 0.4           | 0.003          |
| 1.004 | 2.06       | 1.398        | 55.6         | 6.8           | 0.050          |
| 1.005 | CS2        | 0.540        | 4.2          | 6.8           | 0.050          |

### Manhole Schedule

| Node | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                         | Link  | IL<br>(m) | Dia<br>(mm) |     |
|------|-----------|--------------|-------------|---------------|-------------------------------------------------------------------------------------|-------|-----------|-------------|-----|
| 2.01 | 15.146    | 0.696        | 450         |               |    |       |           |             |     |
|      |           |              |             |               | 0                                                                                   | 1.000 | 14.450    | 150         |     |
| 2.02 | 15.064    | 0.834        | 450         |               |    | 1     | 1.000     | 14.300      | 150 |
|      |           |              |             |               | 0                                                                                   | 1.001 | 14.230    | 150         |     |
| 2.07 | 15.113    | 0.713        | 450         |               |    |       |           |             |     |
|      |           |              |             |               | 0                                                                                   | 2.000 | 14.400    | 150         |     |
| 2.03 | 15.064    | 1.584        | 600         | 450           |    | 1     | 2.000     | 14.300      | 150 |
|      |           |              |             |               | 2                                                                                   | 1.001 | 14.130    | 150         |     |
|      |           |              |             |               | 0                                                                                   | 1.002 | 13.480    | 150         |     |
| 2.08 | 15.132    | 0.732        | 450         |               |    |       |           |             |     |
|      |           |              |             |               | 0                                                                                   | 3.000 | 14.400    | 150         |     |
| 2.04 | 15.065    | 1.705        | 450         | 600           |  | 1     | 3.000     | 14.300      | 150 |
|      |           |              |             |               | 2                                                                                   | 1.002 | 13.360    | 150         |     |
|      |           |              |             |               | 0                                                                                   | 1.003 | 13.360    | 150         |     |
| RE2  | 15.103    | 0.903        | 300         |               |  |       |           |             |     |
|      |           |              |             |               | 0                                                                                   | 4.000 | 14.200    | 150         |     |
| RE1  | 15.180    | 0.980        | 300         |               |  |       |           |             |     |
|      |           |              |             |               | 0                                                                                   | 5.000 | 14.200    | 150         |     |
| 2.06 | 15.040    | 1.910        | 1200        |               |  | 1     | 5.000     | 13.995      | 150 |
|      |           |              |             |               | 2                                                                                   | 4.000 | 14.000    | 150         |     |
|      |           |              |             |               | 3                                                                                   | 1.003 | 13.205    | 150         |     |
|      |           |              |             |               | 0                                                                                   | 1.004 | 13.130    | 225         |     |
| CS2  | 14.850    | 1.820        | 300         |               |  | 1     | 1.004     | 13.080      | 225 |
|      |           |              |             |               | 0                                                                                   | 1.005 | 13.030    | 100         |     |
| DMH  | 14.850    | 1.830        | 300         |               |  | 1     | 1.005     | 13.020      | 100 |

### Simulation Settings

|                      |                   |                            |        |
|----------------------|-------------------|----------------------------|--------|
| Rainfall Methodology | FSR               | Analysis Speed             | Normal |
| FSR Region           | England and Wales | Skip Steady State          | ✓      |
| M5-60 (mm)           | 20.000            | Drain Down Time (mins)     | 240    |
| Ratio-R              | 0.450             | Additional Storage (m³/ha) | 20.0   |
| Summer CV            | 0.750             | Check Discharge Rate(s)    | x      |
| Winter CV            | 0.840             | Check Discharge Volume     | x      |

### Storm Durations

15    30    60    120    180    240    360    480    600    720    960    1440

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 10                       | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

### Node DMH Offline Weir Control

|                  |        |                   |       |                       |       |
|------------------|--------|-------------------|-------|-----------------------|-------|
| Flap Valve       | x      | Design Depth (m)  | 1.600 | Discharge Coefficient | 0.590 |
| Loop to Node     | CS2    | Design Flow (l/s) |       |                       |       |
| Invert Level (m) | 13.020 | Width (m)         | 0.300 |                       |       |

### Node CS2 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 12.050 |
| Side Inf Coefficient (m/hr) | 1.29600 | Porosity      | 1.00 | Time to half empty (mins) | 73     |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 4.5                       | 4.5                           | 1.600        | 4.5                       | 22.1                          | 1.601        | 0.0                       | 22.1                          |

Results for 1 year Critical Storm Duration... Lowest mass balance: 78.63%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 2.01    | 11          | 14.468    | 0.018     | 1.0          | 0.0065        | 0.0000     | OK     |
| 15 minute winter | 2.02    | 11          | 14.258    | 0.028     | 1.4          | 0.0064        | 0.0000     | OK     |
| 15 minute winter | 2.07    | 10          | 14.426    | 0.026     | 1.9          | 0.0134        | 0.0000     | OK     |
| 15 minute winter | 2.03    | 10          | 13.531    | 0.051     | 3.9          | 0.0165        | 0.0000     | OK     |
| 15 minute winter | 2.08    | 10          | 14.418    | 0.018     | 1.2          | 0.0069        | 0.0000     | OK     |
| 15 minute winter | 2.04    | 11          | 13.420    | 0.060     | 5.9          | 0.0205        | 0.0000     | OK     |
| 15 minute winter | RE2     | 11          | 14.217    | 0.017     | 0.6          | 0.0027        | 0.0000     | OK     |
| 15 minute winter | RE1     | 11          | 14.214    | 0.014     | 0.4          | 0.0018        | 0.0000     | OK     |
| 15 minute winter | 2.06    | 11          | 13.190    | 0.060     | 7.1          | 0.0691        | 0.0000     | OK     |
| 60 minute winter | CS2     | 46          | 12.768    | -0.262    | 3.6          | 3.2300        | 0.0000     | OK     |
| 15 minute summer | DMH     | 1           | 13.020    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |

| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 2.01    | 1.000        | 2.02    | 1.0           | 0.851          | 0.029    | 0.0046        |                    |
| 15 minute winter               | 2.02    | 1.001        | 2.03    | 1.4           | 0.647          | 0.069    | 0.0167        |                    |
| 15 minute winter               | 2.07    | 2.000        | 2.03    | 1.9           | 1.005          | 0.053    | 0.0048        |                    |
| 15 minute winter               | 2.03    | 1.002        | 2.04    | 3.8           | 0.648          | 0.244    | 0.0902        |                    |
| 15 minute winter               | 2.08    | 3.000        | 2.04    | 1.2           | 1.032          | 0.026    | 0.0018        |                    |
| 15 minute winter               | 2.04    | 1.003        | 2.06    | 5.8           | 0.908          | 0.317    | 0.0928        |                    |
| 15 minute winter               | RE2     | 4.000        | 2.06    | 0.6           | 0.568          | 0.025    | 0.0119        |                    |
| 15 minute winter               | RE1     | 5.000        | 2.06    | 0.4           | 0.503          | 0.017    | 0.0092        |                    |
| 15 minute winter               | 2.06    | 1.004        | CS2     | 7.2           | 0.906          | 0.129    | 0.0347        |                    |
| 60 minute winter               | CS2     | 1.005        | DMH     | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 60 minute winter               | CS2     | Infiltration |         | 1.4           |                |          |               |                    |
| 15 minute summer               | DMH     | Weir         | CS2     | 0.0           |                |          |               | 0.0                |

Results for 10 year Critical Storm Duration...Lowest mass balance: 78.63%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 2.01    | 10          | 14.476    | 0.026     | 2.0          | 0.0092        | 0.0000     | OK         |
| 15 minute winter | 2.02    | 10          | 14.270    | 0.040     | 2.9          | 0.0092        | 0.0000     | OK         |
| 15 minute winter | 2.07    | 10          | 14.437    | 0.037     | 3.7          | 0.0192        | 0.0000     | OK         |
| 15 minute winter | 2.03    | 10          | 13.556    | 0.076     | 7.6          | 0.0243        | 0.0000     | OK         |
| 15 minute winter | 2.08    | 10          | 14.426    | 0.026     | 2.3          | 0.0098        | 0.0000     | OK         |
| 15 minute winter | 2.04    | 11          | 13.450    | 0.090     | 11.5         | 0.0307        | 0.0000     | OK         |
| 15 minute winter | RE2     | 11          | 14.222    | 0.022     | 1.1          | 0.0036        | 0.0000     | OK         |
| 15 minute winter | RE1     | 10          | 14.220    | 0.020     | 0.9          | 0.0026        | 0.0000     | OK         |
| 60 minute winter | 2.06    | 46          | 13.271    | 0.141     | 6.8          | 0.1625        | 0.0000     | OK         |
| 60 minute winter | CS2     | 47          | 13.272    | 0.242     | 26.6         | 5.5156        | 0.0000     | SURCHARGED |
| 60 minute winter | DMH     | 46          | 13.274    | 0.254     | 9.4          | 0.0180        | 0.0000     | OK         |

| Link Event (Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 2.01    | 1.000        | 2.02    | 2.0           | 1.032          | 0.057    | 0.0075        |                    |
| 15 minute winter            | 2.02    | 1.001        | 2.03    | 2.8           | 0.786          | 0.140    | 0.0278        |                    |
| 15 minute winter            | 2.07    | 2.000        | 2.03    | 3.7           | 1.196          | 0.104    | 0.0079        |                    |
| 15 minute winter            | 2.03    | 1.002        | 2.04    | 7.5           | 0.756          | 0.477    | 0.1508        |                    |
| 15 minute winter            | 2.08    | 3.000        | 2.04    | 2.3           | 1.223          | 0.051    | 0.0029        |                    |
| 15 minute winter            | 2.04    | 1.003        | 2.06    | 11.4          | 1.066          | 0.619    | 0.1540        |                    |
| 15 minute winter            | RE2     | 4.000        | 2.06    | 1.1           | 0.680          | 0.046    | 0.0182        |                    |
| 15 minute winter            | RE1     | 5.000        | 2.06    | 0.9           | 0.630          | 0.036    | 0.0158        |                    |
| 60 minute winter            | 2.06    | 1.004        | CS2     | 6.8           | 0.894          | 0.122    | 0.1364        |                    |
| 60 minute winter            | CS2     | 1.005        | DMH     | -2.8          | -0.358         | -0.660   | 0.0156        |                    |
| 60 minute winter            | CS2     | Infiltration |         | 2.4           |                |          |               |                    |
| 60 minute winter            | DMH     | Weir         | CS2     | 20.3          |                |          |               | 13.5               |

Results for 30 year Critical Storm Duration...Lowest mass balance: 78.63%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 2.01    | 10          | 14.479    | 0.029     | 2.5          | 0.0104        | 0.0000     | OK         |
| 15 minute winter | 2.02    | 10          | 14.275    | 0.045     | 3.6          | 0.0103        | 0.0000     | OK         |
| 15 minute winter | 2.07    | 10          | 14.442    | 0.042     | 4.7          | 0.0219        | 0.0000     | OK         |
| 15 minute winter | 2.03    | 10          | 13.568    | 0.088     | 9.6          | 0.0282        | 0.0000     | OK         |
| 15 minute winter | 2.08    | 10          | 14.429    | 0.029     | 2.9          | 0.0111        | 0.0000     | OK         |
| 60 minute winter | 2.04    | 47          | 13.488    | 0.128     | 7.2          | 0.0437        | 0.0000     | OK         |
| 15 minute winter | RE2     | 11          | 14.225    | 0.025     | 1.4          | 0.0040        | 0.0000     | OK         |
| 15 minute winter | RE1     | 10          | 14.222    | 0.022     | 1.1          | 0.0029        | 0.0000     | OK         |
| 60 minute winter | 2.06    | 45          | 13.485    | 0.355     | 8.8          | 0.4091        | 0.0000     | SURCHARGED |
| 60 minute winter | CS2     | 48          | 13.483    | 0.453     | 45.7         | 6.4828        | 0.0000     | SURCHARGED |
| 30 minute winter | DMH     | 29          | 13.488    | 0.468     | 39.7         | 0.0333        | 0.0000     | OK         |

| Link Event (Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 2.01    | 1.000        | 2.02    | 2.5           | 1.097          | 0.071    | 0.0089        |                    |
| 15 minute winter            | 2.02    | 1.001        | 2.03    | 3.5           | 0.835          | 0.175    | 0.0327        |                    |
| 15 minute winter            | 2.07    | 2.000        | 2.03    | 4.7           | 1.269          | 0.132    | 0.0095        |                    |
| 15 minute winter            | 2.03    | 1.002        | 2.04    | 9.5           | 0.790          | 0.603    | 0.1820        |                    |
| 15 minute winter            | 2.08    | 3.000        | 2.04    | 2.9           | 1.297          | 0.064    | 0.0035        |                    |
| 60 minute winter            | 2.04    | 1.003        | 2.06    | 7.2           | 0.956          | 0.390    | 0.2423        |                    |
| 15 minute winter            | RE2     | 4.000        | 2.06    | 1.4           | 0.729          | 0.059    | 0.0216        |                    |
| 15 minute winter            | RE1     | 5.000        | 2.06    | 1.1           | 0.670          | 0.045    | 0.0183        |                    |
| 60 minute winter            | 2.06    | 1.004        | CS2     | 8.8           | 0.955          | 0.158    | 0.1742        |                    |
| 60 minute winter            | CS2     | 1.005        | DMH     | -3.5          | -0.446         | -0.822   | 0.0156        |                    |
| 60 minute winter            | CS2     | Infiltration |         | 2.8           |                |          |               |                    |
| 30 minute winter            | DMH     | Weir         | CS2     | 0.2           |                |          |               | -13.6              |

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 78.63%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 2.01    | 10          | 14.490    | 0.040     | 4.6          | 0.0144        | 0.0000     | OK         |
| 60 minute winter | 2.02    | 45          | 14.486    | 0.256     | 3.3          | 0.0592        | 0.0000     | SURCHARGED |
| 60 minute winter | 2.07    | 43          | 14.486    | 0.086     | 4.2          | 0.0453        | 0.0000     | OK         |
| 60 minute winter | 2.03    | 43          | 14.485    | 1.005     | 8.8          | 0.3226        | 0.0000     | SURCHARGED |
| 60 minute winter | 2.08    | 45          | 14.480    | 0.080     | 2.6          | 0.0304        | 0.0000     | OK         |
| 60 minute winter | 2.04    | 44          | 14.478    | 1.118     | 12.5         | 0.3801        | 0.0000     | SURCHARGED |
| 60 minute winter | RE2     | 45          | 14.480    | 0.280     | 6.0          | 0.0444        | 0.0000     | SURCHARGED |
| 60 minute winter | RE1     | 45          | 14.477    | 0.277     | 5.8          | 0.0365        | 0.0000     | SURCHARGED |
| 60 minute winter | 2.06    | 46          | 14.513    | 1.383     | 16.1         | 1.5933        | 0.0000     | SURCHARGED |
| 30 minute winter | CS2     | 31          | 14.678    | 1.648     | 312.3        | 7.3193        | 0.0000     | FLOOD RISK |
| 30 minute winter | DMH     | 28          | 14.769    | 1.749     | 306.2        | 0.1242        | 0.0000     | OK         |

| Link Event (Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 2.01    | 1.000        | 2.02    | 4.6           | 1.288          | 0.131    | 0.0139        |                    |
| 60 minute winter            | 2.02    | 1.001        | 2.03    | 3.8           | 0.820          | 0.187    | 0.1359        |                    |
| 60 minute winter            | 2.07    | 2.000        | 2.03    | 4.2           | 1.237          | 0.119    | 0.0360        |                    |
| 60 minute winter            | 2.03    | 1.002        | 2.04    | 8.3           | 0.762          | 0.524    | 0.2666        |                    |
| 60 minute winter            | 2.08    | 3.000        | 2.04    | 3.6           | 1.267          | 0.079    | 0.0215        |                    |
| 60 minute winter            | 2.04    | 1.003        | 2.06    | 12.0          | 1.046          | 0.653    | 0.2535        |                    |
| 60 minute winter            | RE2     | 4.000        | 2.06    | -5.7          | 0.713          | -0.241   | 0.1981        |                    |
| 60 minute winter            | RE1     | 5.000        | 2.06    | -5.6          | 0.660          | -0.238   | 0.2040        |                    |
| 60 minute winter            | 2.06    | 1.004        | CS2     | 70.0          | 1.761          | 1.260    | 0.1742        |                    |
| 30 minute winter            | CS2     | 1.005        | DMH     | -72.3         | -9.236         | -17.037  | 0.0156        |                    |
| 30 minute winter            | CS2     | Infiltration |         | 3.2           |                |          |               |                    |
| 30 minute winter            | DMH     | Weir         | CS2     | 228.2         |                |          |               | -26.6              |

### Design Settings

|                       |                   |                                      |               |
|-----------------------|-------------------|--------------------------------------|---------------|
| Rainfall Methodology  | FSR               | Maximum Time of Concentration (mins) | 30.00         |
| Return Period (years) | 100               | Maximum Rainfall (mm/hr)             | 50.0          |
| Additional Flow (%)   | 0                 | Minimum Velocity (m/s)               | 1.00          |
| FSR Region            | England and Wales | Connection Type                      | Level Soffits |
| M5-60 (mm)            | 20.000            | Minimum Backdrop Height (m)          | 0.200         |
| Ratio-R               | 0.450             | Preferred Cover Depth (m)            | 1.200         |
| CV                    | 0.750             | Include Intermediate Ground          | ✓             |
| Time of Entry (mins)  | 5.00              | Enforce best practice design rules   | ✓             |

### Nodes

| Name   | T of E<br>(mins) | Cover<br>Level<br>(m) | Node<br>Type | Diameter<br>(mm) | Depth<br>(m) |
|--------|------------------|-----------------------|--------------|------------------|--------------|
| 3.01   | 5.00             | 15.092                | Manhole      | 450              | 0.742        |
| 3.06   | 5.00             | 15.093                | Manhole      | 50               | 0.793        |
| 3.07   | 5.00             | 15.118                | Manhole      | 450              | 0.988        |
| 3.02   | 5.00             | 14.970                | Manhole      | 450              | 1.050        |
| RE3.1  | 5.00             | 15.184                | Manhole      | 450              | 0.934        |
| 3.08   | 5.00             | 15.142                | Manhole      | 450              | 0.742        |
| NODE   | 5.00             | 15.070                | Manhole      | 300              | 0.925        |
| 3.09   |                  | 15.134                | Manhole      | 450              | 1.174        |
| 3.09a  |                  | 15.100                | Manhole      | 300              | 1.240        |
| 3.03   | 5.00             | 14.938                | Manhole      | 450              | 1.248        |
| 3.04   |                  | 14.961                | Manhole      | 450              | 1.471        |
| RE 3.2 | 5.00             | 15.050                | Manhole      | 450              | 1.150        |
| 3.05a  |                  | 14.977                | Manhole      | 450              | 1.587        |
| 3.11   | 5.00             | 15.194                | Manhole      | 450              | 0.894        |
| 3.05   | 5.00             | 14.942                | Manhole      | 1200             | 1.727        |
| CS3    |                  | 14.871                | Manhole      | 300              | 1.756        |
| DMH    |                  | 14.858                | Manhole      | 300              | 1.753        |

### Links

| Name  | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | T of C<br>(mins) | Rain<br>(mm/hr) |
|-------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 1.000 | 3.01       | 3.02       | 7.990         | 0.600          | 14.350       | 13.920       | 0.430       | 18.6           | 150         | 5.06             | 50.0            |
| 2.000 | 3.06       | 3.07       | 1.953         | 0.600          | 14.300       | 14.130       | 0.170       | 11.5           | 150         | 5.01             | 50.0            |
| 2.001 | 3.07       | 3.02       | 12.867        | 0.600          | 14.130       | 13.990       | 0.140       | 92.0           | 150         | 5.22             | 50.0            |
| 1.001 | 3.02       | 3.03       | 9.407         | 0.600          | 13.920       | 13.690       | 0.230       | 40.9           | 150         | 5.31             | 50.0            |
| 3.000 | RE3.1      | NODE       | 4.861         | 0.600          | 14.250       | 14.145       | 0.105       | 46.3           | 150         | 5.05             | 50.0            |
| 4.000 | 3.08       | NODE       | 2.536         | 0.600          | 14.400       | 14.145       | 0.255       | 9.9            | 150         | 5.01             | 50.0            |
| 3.001 | NODE       | 3.09       | 1.854         | 0.600          | 14.145       | 13.960       | 0.185       | 10.0           | 150         | 5.06             | 50.0            |

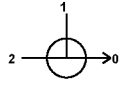
| Name  | US<br>Node | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | Σ Area<br>(ha) | Pro<br>Depth<br>(mm) | Pro<br>Velocity<br>(m/s) |
|-------|------------|--------------|--------------|---------------|----------------|----------------------|--------------------------|
| 1.000 | 3.01       | 2.347        | 41.5         | 0.7           | 0.005          | 13                   | 0.861                    |
| 2.000 | 3.06       | 2.989        | 52.8         | 1.6           | 0.012          | 18                   | 1.341                    |
| 2.001 | 3.07       | 1.048        | 18.5         | 1.8           | 0.013          | 31                   | 0.663                    |
| 1.001 | 3.02       | 1.578        | 27.9         | 2.6           | 0.019          | 31                   | 0.989                    |
| 3.000 | RE3.1      | 1.482        | 26.2         | 0.8           | 0.006          | 18                   | 0.662                    |
| 4.000 | 3.08       | 3.213        | 56.8         | 0.8           | 0.006          | 13                   | 1.147                    |
| 3.001 | NODE       | 3.204        | 56.6         | 2.6           | 0.019          | 22                   | 1.639                    |

### Links

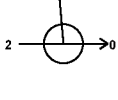
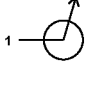
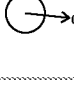
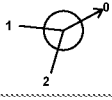
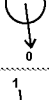
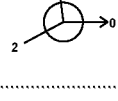
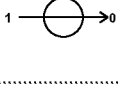
| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 3.002 | 3.09    | 3.09a   | 5.523      | 0.600       | 13.960    | 13.860    | 0.100    | 55.2        | 150      | 5.13          | 50.0         |
| 3.003 | 3.09a   | 3.03    | 5.447      | 0.600       | 13.860    | 13.760    | 0.100    | 54.5        | 150      | 5.20          | 50.0         |
| 1.002 | 3.03    | 3.04    | 19.382     | 0.600       | 13.690    | 13.560    | 0.130    | 149.1       | 150      | 5.71          | 50.0         |
| 1.003 | 3.04    | 3.05a   | 3.251      | 0.600       | 13.490    | 13.390    | 0.100    | 32.5        | 150      | 5.74          | 50.0         |
| 5.000 | RE 3.2  | 3.05a   | 4.946      | 0.600       | 13.900    | 13.460    | 0.440    | 11.2        | 150      | 5.03          | 50.0         |
| 1.004 | 3.05a   | 3.05    | 5.019      | 0.600       | 13.390    | 13.290    | 0.100    | 50.2        | 150      | 5.80          | 50.0         |
| 6.000 | 3.11    | 3.05    | 10.519     | 0.600       | 14.300    | 14.100    | 0.200    | 52.6        | 150      | 5.13          | 50.0         |
| 1.005 | 3.05    | CS3     | 7.136      | 0.600       | 13.215    | 13.115    | 0.100    | 71.4        | 225      | 5.87          | 50.0         |
| 1.006 | CS3     | DMH     | 2.000      | 0.600       | 13.115    | 13.105    | 0.010    | 200.0       | 225      | 5.91          | 50.0         |

| Name  | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|---------|-----------|-----------|------------|-------------|----------------|--------------------|
| 3.002 | 3.09    | 1.356     | 24.0      | 2.6        | 0.019       | 33             | 0.887              |
| 3.003 | 3.09a   | 1.366     | 24.1      | 2.6        | 0.019       | 33             | 0.893              |
| 1.002 | 3.03    | 0.821     | 14.5      | 5.6        | 0.041       | 64             | 0.765              |
| 1.003 | 3.04    | 1.771     | 31.3      | 5.6        | 0.041       | 42             | 1.338              |
| 5.000 | RE 3.2  | 3.022     | 53.4      | 0.3        | 0.002       | 8              | 0.784              |
| 1.004 | 3.05a   | 1.423     | 25.1      | 5.8        | 0.043       | 49             | 1.160              |
| 6.000 | 3.11    | 1.390     | 24.6      | 0.9        | 0.007       | 20             | 0.671              |
| 1.005 | 3.05    | 1.550     | 61.6      | 7.7        | 0.057       | 53             | 1.061              |
| 1.006 | CS3     | 0.921     | 36.6      | 7.7        | 0.057       | 70             | 0.732              |

### Manhole Schedule

| Node  | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                         | Link  | IL<br>(m) | Dia<br>(mm) |     |
|-------|-----------|--------------|-------------|-------------------------------------------------------------------------------------|-------|-----------|-------------|-----|
| 3.01  | 15.092    | 0.742        | 450         |  |       |           |             |     |
|       |           |              |             | 0                                                                                   | 1.000 | 14.350    | 150         |     |
| 3.06  | 15.093    | 0.793        | 50          |  |       |           |             |     |
|       |           |              |             | 0                                                                                   | 2.000 | 14.300    | 150         |     |
| 3.07  | 15.118    | 0.988        | 450         |  | 1     | 2.000     | 14.130      | 150 |
|       |           |              |             | 0                                                                                   | 2.001 | 14.130    | 150         |     |
| 3.02  | 14.970    | 1.050        | 450         |  | 1     | 2.001     | 13.990      | 150 |
|       |           |              |             | 2                                                                                   | 1.000 | 13.920    | 150         |     |
|       |           |              |             | 0                                                                                   | 1.001 | 13.920    | 150         |     |
| RE3.1 | 15.184    | 0.934        | 450         |  |       |           |             |     |
|       |           |              |             | 0                                                                                   | 3.000 | 14.250    | 150         |     |
| 3.08  | 15.142    | 0.742        | 450         |  |       |           |             |     |
|       |           |              |             | 0                                                                                   | 4.000 | 14.400    | 150         |     |

### Manhole Schedule

| Node   | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                         | Link        | IL<br>(m)               | Dia<br>(mm)                                     |
|--------|-----------|--------------|-------------|-------------------------------------------------------------------------------------|-------------|-------------------------|-------------------------------------------------|
| NODE   | 15.070    | 0.925        | 300         |    | 1<br>2      | 4.000<br>3.000          | 14.145<br>14.145<br>150<br>150                  |
| 3.09   | 15.134    | 1.174        | 450         |    | 1<br>0      | 3.001<br>3.001          | 14.145<br>13.960<br>150<br>150                  |
| 3.09a  | 15.100    | 1.240        | 300         |    | 1<br>0      | 3.002<br>3.002          | 13.960<br>13.860<br>150<br>150                  |
| 3.03   | 14.938    | 1.248        | 450         |    | 1<br>2<br>0 | 3.003<br>1.001<br>1.002 | 13.860<br>13.760<br>13.690<br>150<br>150<br>150 |
| 3.04   | 14.961    | 1.471        | 450         |   | 1<br>0      | 1.002<br>1.003          | 13.560<br>13.490<br>150<br>150                  |
| RE 3.2 | 15.050    | 1.150        | 450         |  | 0<br>0      | 5.000                   | 13.900<br>150                                   |
| 3.05a  | 14.977    | 1.587        | 450         |  | 1<br>2<br>0 | 5.000<br>1.003<br>1.004 | 13.460<br>13.390<br>13.390<br>150<br>150<br>150 |
| 3.11   | 15.194    | 0.894        | 450         |  | 0<br>0      | 6.000                   | 14.300<br>150                                   |
| 3.05   | 14.942    | 1.727        | 1200        |  | 1<br>2<br>0 | 6.000<br>1.004<br>1.005 | 14.100<br>13.290<br>13.215<br>150<br>150<br>225 |
| CS3    | 14.871    | 1.756        | 300         |  | 1<br>0      | 1.005<br>1.006          | 13.115<br>13.115<br>225<br>225                  |
| DMH    | 14.858    | 1.753        | 300         |  | 1<br>0      | 1.006                   | 13.105<br>225                                   |

### Simulation Settings

|                      |                   |                            |        |
|----------------------|-------------------|----------------------------|--------|
| Rainfall Methodology | FSR               | Analysis Speed             | Normal |
| FSR Region           | England and Wales | Skip Steady State          | ✓      |
| M5-60 (mm)           | 20.000            | Drain Down Time (mins)     | 240    |
| Ratio-R              | 0.450             | Additional Storage (m³/ha) | 20.0   |
| Summer CV            | 0.750             | Check Discharge Rate(s)    | ✓      |
| Winter CV            | 0.840             | Check Discharge Volume     | ✓      |

### Simulation Settings

100 year 360 minute (m<sup>3</sup>)

### Storm Durations

15 30 60 120 180 240 360 480 600 720 960 1440

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 10                       | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

### Pre-development Discharge Rate

|                              |            |                        |      |
|------------------------------|------------|------------------------|------|
| Site Makeup                  | Greenfield | Growth Factor 30 year  | 1.95 |
| Greenfield Method            | IH124      | Growth Factor 100 year | 2.48 |
| Positively Drained Area (ha) |            | Betterment (%)         | 0    |
| SAAR (mm)                    |            | QBar                   |      |
| Soil Index                   | 1          | Q 1 year (l/s)         |      |
| SPR                          | 0.10       | Q 30 year (l/s)        |      |
| Region                       | 1          | Q 100 year (l/s)       |      |
| Growth Factor 1 year         | 0.85       |                        |      |

### Pre-development Discharge Volume

|                              |            |                                 |     |
|------------------------------|------------|---------------------------------|-----|
| Site Makeup                  | Greenfield | Return Period (years)           | 100 |
| Greenfield Method            | FSR/FEH    | Climate Change (%)              | 0   |
| Positively Drained Area (ha) |            | Storm Duration (mins)           | 360 |
| Soil Index                   | 1          | Betterment (%)                  | 0   |
| SPR                          | 0.10       | PR                              |     |
| CWI                          |            | Runoff Volume (m <sup>3</sup> ) |     |

### Node DMH Offline Weir Control

|                  |        |                   |       |                       |       |
|------------------|--------|-------------------|-------|-----------------------|-------|
| Flap Valve       | x      | Design Depth (m)  | 1.500 | Discharge Coefficient | 0.590 |
| Loop to Node     | CS3    | Design Flow (l/s) |       |                       |       |
| Invert Level (m) | 13.105 | Width (m)         | 0.300 |                       |       |

### Node CS3 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 12.100 |
| Side Inf Coefficient (m/hr) | 1.29600 | Porosity      | 1.00 | Time to half empty (mins) | 84     |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 8.0                       | 8.0                           | 1.600        | 8.0                       | 27.2                          | 1.601        | 0.0                       | 27.2                          |

Results for 1 year Critical Storm Duration. Lowest mass balance: 85.01%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 3.01    | 11          | 14.364    | 0.014     | 0.7          | 0.0040        | 0.0000     | OK     |
| 15 minute winter | 3.06    | 10          | 14.319    | 0.019     | 1.8          | 0.0058        | 0.0000     | OK     |
| 15 minute winter | 3.07    | 10          | 14.163    | 0.033     | 1.9          | 0.0059        | 0.0000     | OK     |
| 15 minute winter | 3.02    | 11          | 13.951    | 0.031     | 2.6          | 0.0056        | 0.0000     | OK     |
| 15 minute winter | RE3.1   | 10          | 14.269    | 0.019     | 0.9          | 0.0054        | 0.0000     | OK     |
| 15 minute winter | 3.08    | 10          | 14.413    | 0.013     | 0.9          | 0.0042        | 0.0000     | OK     |
| 15 minute winter | NODE    | 10          | 14.168    | 0.023     | 2.8          | 0.0051        | 0.0000     | OK     |
| 15 minute winter | 3.09    | 10          | 13.996    | 0.036     | 2.7          | 0.0057        | 0.0000     | OK     |
| 15 minute winter | 3.09a   | 11          | 13.896    | 0.036     | 2.7          | 0.0026        | 0.0000     | OK     |
| 15 minute winter | 3.03    | 11          | 13.758    | 0.068     | 5.8          | 0.0140        | 0.0000     | OK     |
| 15 minute winter | 3.04    | 11          | 13.538    | 0.048     | 5.8          | 0.0077        | 0.0000     | OK     |
| 15 minute summer | RE 3.2  | 11          | 13.908    | 0.008     | 0.3          | 0.0016        | 0.0000     | OK     |
| 15 minute winter | 3.05a   | 11          | 13.445    | 0.055     | 6.0          | 0.0087        | 0.0000     | OK     |
| 15 minute winter | 3.11    | 11          | 14.321    | 0.021     | 1.0          | 0.0066        | 0.0000     | OK     |
| 15 minute winter | 3.05    | 11          | 13.273    | 0.058     | 8.0          | 0.0709        | 0.0000     | OK     |
| 60 minute winter | CS3     | 49          | 12.627    | -0.488    | 4.1          | 4.2195        | 0.0000     | OK     |
| 15 minute summer | DMH     | 1           | 13.105    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |

| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 3.01    | 1.000        | 3.02    | 0.7           | 0.640          | 0.017    | 0.0138        |                    |
| 15 minute winter               | 3.06    | 2.000        | 3.07    | 1.8           | 0.887          | 0.034    | 0.0040        |                    |
| 15 minute winter               | 3.07    | 2.001        | 3.02    | 1.8           | 0.664          | 0.100    | 0.0358        |                    |
| 15 minute winter               | 3.02    | 1.001        | 3.03    | 2.7           | 0.537          | 0.095    | 0.0488        |                    |
| 15 minute winter               | RE3.1   | 3.000        | NODE    | 0.9           | 0.591          | 0.033    | 0.0072        |                    |
| 15 minute winter               | 3.08    | 4.000        | NODE    | 0.9           | 0.741          | 0.016    | 0.0031        |                    |
| 15 minute winter               | NODE    | 3.001        | 3.09    | 2.7           | 1.129          | 0.048    | 0.0046        |                    |
| 15 minute winter               | 3.09    | 3.002        | 3.09a   | 2.7           | 0.844          | 0.113    | 0.0178        |                    |
| 15 minute winter               | 3.09a   | 3.003        | 3.03    | 2.7           | 0.875          | 0.113    | 0.0170        |                    |
| 15 minute winter               | 3.03    | 1.002        | 3.04    | 5.8           | 0.763          | 0.397    | 0.1463        |                    |
| 15 minute winter               | 3.04    | 1.003        | 3.05a   | 5.7           | 1.075          | 0.184    | 0.0174        |                    |
| 15 minute summer               | RE 3.2  | 5.000        | 3.05a   | 0.3           | 0.803          | 0.006    | 0.0018        |                    |
| 15 minute winter               | 3.05a   | 1.004        | 3.05    | 6.0           | 1.101          | 0.239    | 0.0274        |                    |
| 15 minute winter               | 3.11    | 6.000        | 3.05    | 1.0           | 0.676          | 0.041    | 0.0156        |                    |
| 15 minute winter               | 3.05    | 1.005        | CS3     | 7.9           | 1.022          | 0.129    | 0.0554        |                    |
| 60 minute winter               | CS3     | 1.006        | DMH     | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 60 minute winter               | CS3     | Infiltration |         | 1.1           |                |          |               |                    |
| 15 minute summer               | DMH     | Weir         | CS3     | 0.0           |                |          |               | 0.0                |

Results for 10 year Critical Storm Duration... Lowest mass balance: 85.01%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 3.01    | 10          | 14.369    | 0.019     | 1.4          | 0.0055        | 0.0000     | OK     |
| 15 minute winter | 3.06    | 10          | 14.326    | 0.026     | 3.4          | 0.0080        | 0.0000     | OK     |
| 15 minute winter | 3.07    | 10          | 14.176    | 0.046     | 3.7          | 0.0083        | 0.0000     | OK     |
| 15 minute winter | 3.02    | 10          | 13.964    | 0.044     | 5.3          | 0.0078        | 0.0000     | OK     |
| 15 minute winter | RE3.1   | 10          | 14.276    | 0.026     | 1.7          | 0.0075        | 0.0000     | OK     |
| 15 minute winter | 3.08    | 10          | 14.418    | 0.018     | 1.7          | 0.0057        | 0.0000     | OK     |
| 15 minute winter | NODE    | 10          | 14.178    | 0.033     | 5.4          | 0.0074        | 0.0000     | OK     |
| 15 minute winter | 3.09    | 10          | 14.012    | 0.052     | 5.3          | 0.0082        | 0.0000     | OK     |
| 15 minute winter | 3.09a   | 10          | 13.911    | 0.051     | 5.3          | 0.0037        | 0.0000     | OK     |
| 15 minute winter | 3.03    | 11          | 13.795    | 0.105     | 11.4         | 0.0218        | 0.0000     | OK     |
| 15 minute winter | 3.04    | 11          | 13.564    | 0.074     | 11.4         | 0.0118        | 0.0000     | OK     |
| 15 minute winter | RE 3.2  | 10          | 13.911    | 0.011     | 0.6          | 0.0022        | 0.0000     | OK     |
| 15 minute winter | 3.05a   | 11          | 13.473    | 0.083     | 11.9         | 0.0131        | 0.0000     | OK     |
| 15 minute winter | 3.11    | 10          | 14.330    | 0.030     | 2.0          | 0.0093        | 0.0000     | OK     |
| 15 minute winter | 3.05    | 11          | 13.300    | 0.085     | 15.7         | 0.1035        | 0.0000     | OK     |
| 60 minute winter | CS3     | 50          | 13.076    | -0.039    | 7.7          | 7.8070        | 0.0000     | OK     |
| 15 minute summer | DMH     | 1           | 13.105    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK     |

| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 3.01    | 1.000        | 3.02    | 1.4           | 0.655          | 0.033    | 0.0223        |                    |
| 15 minute winter               | 3.06    | 2.000        | 3.07    | 3.4           | 1.029          | 0.064    | 0.0065        |                    |
| 15 minute winter               | 3.07    | 2.001        | 3.02    | 3.6           | 0.799          | 0.195    | 0.0583        |                    |
| 15 minute winter               | 3.02    | 1.001        | 3.03    | 5.2           | 0.627          | 0.188    | 0.0825        |                    |
| 15 minute winter               | RE3.1   | 3.000        | NODE    | 1.7           | 0.680          | 0.064    | 0.0121        |                    |
| 15 minute winter               | 3.08    | 4.000        | NODE    | 1.7           | 0.848          | 0.030    | 0.0052        |                    |
| 15 minute winter               | NODE    | 3.001        | 3.09    | 5.3           | 1.302          | 0.094    | 0.0077        |                    |
| 15 minute winter               | 3.09    | 3.002        | 3.09a   | 5.3           | 0.989          | 0.221    | 0.0296        |                    |
| 15 minute winter               | 3.09a   | 3.003        | 3.03    | 5.3           | 1.039          | 0.218    | 0.0276        |                    |
| 15 minute winter               | 3.03    | 1.002        | 3.04    | 11.4          | 0.892          | 0.787    | 0.2478        |                    |
| 15 minute winter               | 3.04    | 1.003        | 3.05a   | 11.4          | 1.222          | 0.364    | 0.0303        |                    |
| 15 minute winter               | RE 3.2  | 5.000        | 3.05a   | 0.6           | 0.978          | 0.011    | 0.0031        |                    |
| 15 minute winter               | 3.05a   | 1.004        | 3.05    | 11.9          | 1.296          | 0.474    | 0.0461        |                    |
| 15 minute winter               | 3.11    | 6.000        | 3.05    | 2.0           | 0.822          | 0.080    | 0.0252        |                    |
| 15 minute winter               | 3.05    | 1.005        | CS3     | 15.7          | 1.219          | 0.255    | 0.0921        |                    |
| 60 minute winter               | CS3     | 1.006        | DMH     | 0.0           | 0.000          | 0.000    | 0.0000        |                    |
| 60 minute winter               | CS3     | Infiltration |         | 2.1           |                |          |               |                    |
| 15 minute summer               | DMH     | Weir         | CS3     | 0.0           |                |          |               | 0.0                |

Results for 30 year Critical Storm Duration... Lowest mass balance: 85.01%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|--------|
| 15 minute winter | 3.01    | 10          | 14.371    | 0.021     | 1.8          | 0.0063        | 0.0000     | OK     |
| 15 minute winter | 3.06    | 10          | 14.330    | 0.030     | 4.3          | 0.0092        | 0.0000     | OK     |
| 15 minute winter | 3.07    | 10          | 14.183    | 0.053     | 4.7          | 0.0095        | 0.0000     | OK     |
| 15 minute winter | 3.02    | 10          | 13.970    | 0.050     | 6.8          | 0.0089        | 0.0000     | OK     |
| 15 minute winter | RE3.1   | 10          | 14.280    | 0.030     | 2.2          | 0.0086        | 0.0000     | OK     |
| 15 minute winter | 3.08    | 10          | 14.420    | 0.020     | 2.2          | 0.0065        | 0.0000     | OK     |
| 15 minute winter | NODE    | 10          | 14.184    | 0.039     | 6.9          | 0.0086        | 0.0000     | OK     |
| 15 minute winter | 3.09    | 10          | 14.019    | 0.059     | 6.8          | 0.0095        | 0.0000     | OK     |
| 15 minute winter | 3.09a   | 10          | 13.919    | 0.059     | 6.7          | 0.0042        | 0.0000     | OK     |
| 15 minute winter | 3.03    | 11          | 13.821    | 0.131     | 14.4         | 0.0271        | 0.0000     | OK     |
| 15 minute winter | 3.04    | 11          | 13.578    | 0.088     | 14.3         | 0.0139        | 0.0000     | OK     |
| 15 minute winter | RE 3.2  | 9           | 13.912    | 0.012     | 0.7          | 0.0024        | 0.0000     | OK     |
| 15 minute winter | 3.05a   | 11          | 13.486    | 0.096     | 15.0         | 0.0153        | 0.0000     | OK     |
| 15 minute winter | 3.11    | 10          | 14.333    | 0.033     | 2.5          | 0.0105        | 0.0000     | OK     |
| 15 minute winter | 3.05    | 11          | 13.313    | 0.098     | 19.8         | 0.1183        | 0.0000     | OK     |
| 60 minute winter | CS3     | 49          | 13.299    | 0.184     | 10.5         | 9.6074        | 0.0000     | OK     |
| 60 minute winter | DMH     | 52          | 13.301    | 0.196     | 1.6          | 0.0139        | 0.0000     | OK     |

| Link Event (Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-----------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter            | 3.01    | 1.000        | 3.02    | 1.8           | 0.573          | 0.043    | 0.0266        |                    |
| 15 minute winter            | 3.06    | 2.000        | 3.07    | 4.3           | 1.089          | 0.081    | 0.0079        |                    |
| 15 minute winter            | 3.07    | 2.001        | 3.02    | 4.6           | 0.851          | 0.248    | 0.0694        |                    |
| 15 minute winter            | 3.02    | 1.001        | 3.03    | 6.7           | 0.646          | 0.240    | 0.1006        |                    |
| 15 minute winter            | RE3.1   | 3.000        | NODE    | 2.2           | 0.718          | 0.083    | 0.0147        |                    |
| 15 minute winter            | 3.08    | 4.000        | NODE    | 2.2           | 0.900          | 0.038    | 0.0063        |                    |
| 15 minute winter            | NODE    | 3.001        | 3.09    | 6.8           | 1.362          | 0.120    | 0.0093        |                    |
| 15 minute winter            | 3.09    | 3.002        | 3.09a   | 6.7           | 1.043          | 0.281    | 0.0357        |                    |
| 15 minute winter            | 3.09a   | 3.003        | 3.03    | 6.6           | 1.095          | 0.275    | 0.0356        |                    |
| 15 minute winter            | 3.03    | 1.002        | 3.04    | 14.3          | 0.941          | 0.989    | 0.2938        |                    |
| 15 minute winter            | 3.04    | 1.003        | 3.05a   | 14.3          | 1.265          | 0.458    | 0.0368        |                    |
| 15 minute winter            | RE 3.2  | 5.000        | 3.05a   | 0.7           | 1.028          | 0.013    | 0.0068        |                    |
| 15 minute winter            | 3.05a   | 1.004        | 3.05    | 15.0          | 1.360          | 0.595    | 0.0552        |                    |
| 15 minute winter            | 3.11    | 6.000        | 3.05    | 2.5           | 0.877          | 0.101    | 0.0297        |                    |
| 15 minute winter            | 3.05    | 1.005        | CS3     | 19.8          | 1.289          | 0.321    | 0.1094        |                    |
| 60 minute winter            | CS3     | 1.006        | DMH     | -1.7          | 0.117          | -0.045   | 0.0716        |                    |
| 60 minute winter            | CS3     | Infiltration |         | 2.6           |                |          |               |                    |
| 60 minute winter            | DMH     | Weir         | CS3     | 7.3           |                |          |               | 0.6                |

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 85.01%

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter | 3.01    | 10          | 14.379    | 0.029     | 3.3          | 0.0084        | 0.0000     | OK         |
| 15 minute winter | 3.06    | 10          | 14.344    | 0.044     | 7.9          | 0.0133        | 0.0000     | OK         |
| 15 minute winter | 3.07    | 10          | 14.205    | 0.075     | 8.6          | 0.0134        | 0.0000     | OK         |
| 60 minute winter | 3.02    | 45          | 14.102    | 0.182     | 6.1          | 0.0324        | 0.0000     | SURCHARGED |
| 15 minute winter | RE3.1   | 10          | 14.291    | 0.041     | 3.9          | 0.0118        | 0.0000     | OK         |
| 15 minute winter | 3.08    | 10          | 14.427    | 0.027     | 3.9          | 0.0086        | 0.0000     | OK         |
| 15 minute winter | NODE    | 11          | 14.202    | 0.057     | 12.4         | 0.0126        | 0.0000     | OK         |
| 15 minute winter | 3.09    | 12          | 14.112    | 0.152     | 12.3         | 0.0242        | 0.0000     | SURCHARGED |
| 60 minute winter | 3.09a   | 45          | 14.102    | 0.242     | 6.1          | 0.0171        | 0.0000     | SURCHARGED |
| 60 minute winter | 3.03    | 45          | 14.099    | 0.409     | 13.2         | 0.0847        | 0.0000     | SURCHARGED |
| 60 minute winter | 3.04    | 48          | 14.080    | 0.590     | 13.2         | 0.0938        | 0.0000     | SURCHARGED |
| 60 minute winter | RE 3.2  | 44          | 14.075    | 0.175     | 2.3          | 0.0339        | 0.0000     | SURCHARGED |
| 60 minute winter | 3.05a   | 45          | 14.078    | 0.688     | 13.7         | 0.1094        | 0.0000     | SURCHARGED |
| 15 minute winter | 3.11    | 10          | 14.346    | 0.046     | 4.6          | 0.0144        | 0.0000     | OK         |
| 60 minute winter | 3.05    | 50          | 14.130    | 0.915     | 18.0         | 1.1089        | 0.0000     | SURCHARGED |
| 60 minute winter | CS3     | 58          | 14.144    | 1.029     | 259.4        | 12.8771       | 0.0000     | SURCHARGED |
| 60 minute winter | DMH     | 45          | 14.355    | 1.250     | 205.1        | 0.0888        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter               | 3.01    | 1.000        | 3.02    | 3.3           | 0.757          | 0.079    | 0.0793        |                    |
| 15 minute winter               | 3.06    | 2.000        | 3.07    | 7.9           | 1.218          | 0.149    | 0.0127        |                    |
| 15 minute winter               | 3.07    | 2.001        | 3.02    | 8.4           | 0.991          | 0.454    | 0.1314        |                    |
| 60 minute winter               | 3.02    | 1.001        | 3.03    | 6.1           | 0.622          | 0.219    | 0.1656        |                    |
| 15 minute winter               | RE3.1   | 3.000        | NODE    | 3.9           | 0.837          | 0.148    | 0.0241        |                    |
| 15 minute winter               | 3.08    | 4.000        | NODE    | 3.9           | 1.057          | 0.068    | 0.0103        |                    |
| 15 minute winter               | NODE    | 3.001        | 3.09    | 12.3          | 1.480          | 0.217    | 0.0209        |                    |
| 15 minute winter               | 3.09    | 3.002        | 3.09a   | 11.4          | 1.112          | 0.476    | 0.0972        |                    |
| 60 minute winter               | 3.09a   | 3.003        | 3.03    | 6.1           | 1.078          | 0.253    | 0.0959        |                    |
| 60 minute winter               | 3.03    | 1.002        | 3.04    | 13.2          | 0.926          | 0.908    | 0.3412        |                    |
| 60 minute winter               | 3.04    | 1.003        | 3.05a   | 13.1          | 1.247          | 0.419    | 0.0572        |                    |
| 60 minute winter               | RE 3.2  | 5.000        | 3.05a   | 2.6           | 0.971          | 0.048    | 0.0871        |                    |
| 60 minute winter               | 3.05a   | 1.004        | 3.05    | 13.4          | 1.330          | 0.534    | 0.0884        |                    |
| 15 minute winter               | 3.11    | 6.000        | 3.05    | 4.5           | 1.035          | 0.185    | 0.0461        |                    |
| 60 minute winter               | 3.05    | 1.005        | CS3     | 21.7          | 1.230          | 0.351    | 0.2838        |                    |
| 60 minute winter               | CS3     | 1.006        | DMH     | 43.9          | 1.105          | 1.200    | 0.0795        |                    |
| 60 minute winter               | CS3     | Infiltration |         | 3.5           |                |          |               |                    |
| 60 minute winter               | DMH     | Weir         | CS3     | 202.9         |                |          |               | 63.8               |

## Design Settings

|                       |                   |                                      |               |
|-----------------------|-------------------|--------------------------------------|---------------|
| Rainfall Methodology  | FSR               | Maximum Time of Concentration (mins) | 30.00         |
| Return Period (years) | 100               | Maximum Rainfall (mm/hr)             | 50.0          |
| Additional Flow (%)   | 0                 | Minimum Velocity (m/s)               | 1.00          |
| FSR Region            | England and Wales | Connection Type                      | Level Soffits |
| M5-60 (mm)            | 20.000            | Minimum Backdrop Height (m)          | 0.200         |
| Ratio-R               | 0.403             | Preferred Cover Depth (m)            | 1.200         |
| CV                    | 0.750             | Include Intermediate Ground          | ✓             |
| Time of Entry (mins)  | 5.00              | Enforce best practice design rules   | ✓             |

## Nodes

| Name  | T of E (mins) | Cover Level (m) | Node Type | Diameter (mm) | Depth (m) |
|-------|---------------|-----------------|-----------|---------------|-----------|
| NODE  | 5.00          | 13.336          | Manhole   | 1200          | 0.486     |
| 4.01  | 5.00          | 13.547          | Manhole   | 1200          | 0.847     |
| 4.02  | 5.00          | 14.200          | Manhole   | 1200          | 1.600     |
| 4.03  | 5.00          | 14.639          | Manhole   | 1200          | 2.669     |
| CS4.1 |               | 14.688          | Manhole   | 300           | 2.818     |
| DMH   |               | 14.712          | Manhole   | 300           | 2.843     |

## Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | NODE    | 4.01    | 4.634      | 0.600       | 12.850    | 12.700    | 0.150    | 30.9        | 150      | 5.04          | 50.0         |
| 1.001 | 4.01    | 4.02    | 14.894     | 0.600       | 12.700    | 12.600    | 0.100    | 148.9       | 150      | 5.34          | 50.0         |
| 1.002 | 4.02    | 4.03    | 11.806     | 0.600       | 12.600    | 12.450    | 0.150    | 78.7        | 150      | 5.52          | 50.0         |
| 1.003 | 4.03    | CS4.1   | 3.910      | 0.600       | 11.970    | 11.870    | 0.100    | 39.1        | 150      | 5.56          | 50.0         |
| 1.004 | CS4.1   | DMH     | 1.958      | 0.600       | 11.870    | 11.869    | 0.001    | 1958.0      | 150      | 5.71          | 50.0         |

| Name  | US Node | Vel (m/s) | Cap (l/s) | Flow (l/s) | Σ Area (ha) |
|-------|---------|-----------|-----------|------------|-------------|
| 1.000 | NODE    | 1.818     | 32.1      | 0.0        | 0.000       |
| 1.001 | 4.01    | 0.821     | 14.5      | 1.8        | 0.013       |
| 1.002 | 4.02    | 1.134     | 20.0      | 5.3        | 0.039       |
| 1.003 | 4.03    | 1.614     | 28.5      | 8.5        | 0.063       |
| 1.004 | CS4.1   | 0.219     | 3.9       | 8.5        | 0.063       |

## Manhole Schedule

| Node | CL (m) | Depth (m) | Dia (mm) | Connections                                                                         | Link  | IL (m) | Dia (mm) |
|------|--------|-----------|----------|-------------------------------------------------------------------------------------|-------|--------|----------|
| NODE | 13.336 | 0.486     | 1200     |  |       |        |          |
|      |        |           |          | 0                                                                                   | 1.000 | 12.850 | 150      |
| 4.01 | 13.547 | 0.847     | 1200     |  | 1     | 1.000  | 12.700   |
|      |        |           |          | 0                                                                                   | 1.001 | 12.700 | 150      |
| 4.02 | 14.200 | 1.600     | 1200     |  | 1     | 1.001  | 12.600   |
|      |        |           |          | 0                                                                                   | 1.002 | 12.600 | 150      |

### Manhole Schedule

| Node  | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                       | Link | IL<br>(m) | Dia<br>(mm) |
|-------|-----------|--------------|-------------|-----------------------------------------------------------------------------------|------|-----------|-------------|
| 4.03  | 14.639    | 2.669        | 1200        |  | 1    | 1.002     | 12.450      |
| CS4.1 | 14.688    | 2.818        | 300         |  | 0    | 1.003     | 11.970      |
|       |           |              |             |  | 1    | 1.003     | 11.870      |
| DMH   | 14.712    | 2.843        | 300         |  | 0    | 1.004     | 11.870      |
|       |           |              |             |  | 1    | 1.004     | 11.869      |

### Simulation Settings

|                      |                   |                            |      |
|----------------------|-------------------|----------------------------|------|
| Rainfall Methodology | FSR               | Skip Steady State          | x    |
| FSR Region           | England and Wales | Drain Down Time (mins)     | 240  |
| M5-60 (mm)           | 20.000            | Additional Storage (m³/ha) | 20.0 |
| Ratio-R              | 0.400             | Check Discharge Rate(s)    | x    |
| Summer CV            | 0.750             | Check Discharge Volume     | x    |
| Analysis Speed       | Normal            |                            |      |

### Storm Durations

15    30    60    120    180    240    360    480    600    720    960    1440

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 10                       | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

### Node DMH Offline Orifice Control

|              |       |                  |        |                       |       |
|--------------|-------|------------------|--------|-----------------------|-------|
| Flap Valve   | x     | Invert Level (m) | 11.869 | Discharge Coefficient | 0.600 |
| Loop to Node | CS4.1 | Diameter (m)     | 0.100  |                       |       |

### Node CS4.1 Depth/Area Storage Structure

|                             |          |               |      |                           |        |
|-----------------------------|----------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000  | Safety Factor | 2.0  | Invert Level (m)          | 11.270 |
| Side Inf Coefficient (m/hr) | 16.16000 | Porosity      | 1.00 | Time to half empty (mins) | 7      |

| Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) | Depth<br>(m) | Area<br>(m²) | Inf Area<br>(m²) |
|--------------|--------------|------------------|--------------|--------------|------------------|--------------|--------------|------------------|
| 0.000        | 3.0          | 3.0              | 1.600        | 3.0          | 14.2             | 1.601        | 0.0          | 14.2             |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%**

| Node Event       | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute summer | NODE       | 1              | 12.850       | 0.000        | 0.0             | 0.0000           | 0.0000        | OK     |
| 15 minute summer | 4.01       | 11             | 12.735       | 0.035        | 1.7             | 0.0497           | 0.0000        | OK     |
| 15 minute summer | 4.02       | 10             | 12.654       | 0.054        | 5.2             | 0.0781           | 0.0000        | OK     |
| 15 minute summer | 4.03       | 10             | 12.032       | 0.062        | 8.2             | 0.0818           | 0.0000        | OK     |
| 15 minute summer | CS4.1      | 13             | 11.700       | -0.170       | 8.2             | 1.2898           | 0.0000        | OK     |
| 15 minute summer | DMH        | 1              | 11.869       | 0.000        | 0.0             | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link         | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute summer               | NODE       | 1.000        | 4.01       | 0.0              | 0.000             | 0.000    | 0.0071           |                       |
| 15 minute summer               | 4.01       | 1.001        | 4.02       | 1.7              | 0.394             | 0.117    | 0.0648           |                       |
| 15 minute summer               | 4.02       | 1.002        | 4.03       | 5.1              | 0.925             | 0.253    | 0.0647           |                       |
| 15 minute summer               | 4.03       | 1.003        | CS4.1      | 8.2              | 1.285             | 0.288    | 0.0250           |                       |
| 15 minute summer               | CS4.1      | 1.004        | DMH        | 0.0              | 0.000             | 0.000    | 0.0000           |                       |
| 15 minute summer               | CS4.1      | Infiltration |            | 6.2              |                   |          |                  |                       |
| 15 minute summer               | DMH        | Orifice      | CS4.1      | 0.0              |                   |          |                  | 0.0                   |

**Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute summer | NODE    | 1           | 12.850    | 0.000     | 0.0          | 0.0000        | 0.0000     | OK         |
| 15 minute summer | 4.01    | 10          | 12.749    | 0.049     | 3.4          | 0.0699        | 0.0000     | OK         |
| 15 minute summer | 4.02    | 10          | 12.679    | 0.079     | 10.0         | 0.1150        | 0.0000     | OK         |
| 15 minute summer | 4.03    | 10          | 12.065    | 0.095     | 16.0         | 0.1251        | 0.0000     | OK         |
| 15 minute summer | CS4.1   | 13          | 12.021    | 0.151     | 15.9         | 2.2652        | 0.0000     | SURCHARGED |
| 15 minute summer | DMH     | 13          | 12.022    | 0.153     | 1.4          | 0.0108        | 0.0000     | OK         |

| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer               | NODE    | 1.000        | 4.01    | 0.0           | 0.000          | 0.000    | 0.0115        |                    |
| 15 minute summer               | 4.01    | 1.001        | 4.02    | 3.3           | 0.465          | 0.229    | 0.1068        |                    |
| 15 minute summer               | 4.02    | 1.002        | 4.03    | 9.8           | 1.091          | 0.490    | 0.1064        |                    |
| 15 minute summer               | 4.03    | 1.003        | CS4.1   | 15.9          | 1.485          | 0.556    | 0.0558        |                    |
| 15 minute summer               | CS4.1   | 1.004        | DMH     | 1.2           | -0.141         | 0.304    | 0.0345        |                    |
| 15 minute summer               | CS4.1   | Infiltration |         | 11.4          |                |          |               |                    |
| 15 minute summer               | DMH     | Orifice      | CS4.1   | 0.6           |                |          |               | 0.1                |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%**

| Node Event                     | US Node | Peak (mins)  | Level (m) | Depth (m)     | Inflow (l/s)   | Node Vol (m³) | Flood (m³)    | Status             |
|--------------------------------|---------|--------------|-----------|---------------|----------------|---------------|---------------|--------------------|
| 15 minute summer               | NODE    | 1            | 12.850    | 0.000         | 0.0            | 0.0000        | 0.0000        | OK                 |
| 15 minute summer               | 4.01    | 10           | 12.755    | 0.055         | 4.3            | 0.0794        | 0.0000        | OK                 |
| 15 minute summer               | 4.02    | 10           | 12.693    | 0.093         | 12.8           | 0.1352        | 0.0000        | OK                 |
| 15 minute summer               | 4.03    | 12           | 12.210    | 0.240         | 20.5           | 0.3143        | 0.0000        | SURCHARGED         |
| 15 minute summer               | CS4.1   | 13           | 12.168    | 0.298         | 20.0           | 2.7166        | 0.0000        | SURCHARGED         |
| 15 minute summer               | DMH     | 13           | 12.169    | 0.300         | 2.4            | 0.0213        | 0.0000        | OK                 |
| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node   | Outflow (l/s) | Velocity (m/s) | Flow/Cap      | Link Vol (m³) | Discharge Vol (m³) |
| 15 minute summer               | NODE    | 1.000        | 4.01      | 0.0           | 0.000          | 0.000         | 0.0136        |                    |
| 15 minute summer               | 4.01    | 1.001        | 4.02      | 4.2           | 0.488          | 0.291         | 0.1291        |                    |
| 15 minute summer               | 4.02    | 1.002        | 4.03      | 12.6          | 1.152          | 0.627         | 0.1291        |                    |
| 15 minute summer               | 4.03    | 1.003        | CS4.1     | 20.0          | 1.521          | 0.701         | 0.0688        |                    |
| 15 minute summer               | CS4.1   | 1.004        | DMH       | 2.0           | -0.225         | 0.519         | 0.0345        |                    |
| 15 minute summer               | CS4.1   | Infiltration |           | 13.8          |                |               |               |                    |
| 15 minute summer               | DMH     | Orifice      | CS4.1     | 0.6           |                |               |               | 0.1                |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%**

| Node Event                     | US Node | Peak (mins)  | Level (m) | Depth (m)     | Inflow (l/s)   | Node Vol (m³) | Flood (m³)    | Status             |
|--------------------------------|---------|--------------|-----------|---------------|----------------|---------------|---------------|--------------------|
| 15 minute summer               | NODE    | 12           | 12.895    | 0.045         | 1.0            | 0.0514        | 0.0000        | OK                 |
| 15 minute summer               | 4.01    | 12           | 12.896    | 0.196         | 7.8            | 0.2816        | 0.0000        | SURCHARGED         |
| 15 minute summer               | 4.02    | 12           | 12.882    | 0.282         | 21.8           | 0.4110        | 0.0000        | SURCHARGED         |
| 15 minute summer               | 4.03    | 13           | 12.766    | 0.796         | 35.3           | 1.0439        | 0.0000        | SURCHARGED         |
| 15 minute summer               | CS4.1   | 13           | 12.660    | 0.790         | 30.3           | 4.2273        | 0.0000        | SURCHARGED         |
| 15 minute summer               | DMH     | 13           | 12.662    | 0.793         | 5.4            | 0.0563        | 0.0000        | OK                 |
| Link Event<br>(Upstream Depth) | US Node | Link         | DS Node   | Outflow (l/s) | Velocity (m/s) | Flow/Cap      | Link Vol (m³) | Discharge Vol (m³) |
| 15 minute summer               | NODE    | 1.000        | 4.01      | 1.0           | 0.080          | 0.032         | 0.0512        |                    |
| 15 minute summer               | 4.01    | 1.001        | 4.02      | 7.0           | 0.521          | 0.484         | 0.2622        |                    |
| 15 minute summer               | 4.02    | 1.002        | 4.03      | 20.9          | 1.190          | 1.043         | 0.2078        |                    |
| 15 minute summer               | 4.03    | 1.003        | CS4.1     | 30.3          | 1.722          | 1.063         | 0.0688        |                    |
| 15 minute summer               | CS4.1   | 1.004        | DMH       | 3.4           | 0.788          | 0.873         | 0.0345        |                    |
| 15 minute summer               | CS4.1   | Infiltration |           | 21.7          |                |               |               |                    |
| 15 minute summer               | DMH     | Orifice      | CS4.1     | 0.8           |                |               |               | 0.1                |